BRITISH
22 OCT 75
MUSEUM

THE ARCHITECTURE OF A. PALLADIO; IN FOUR BOOKS.

CONTAINING

A short TREATISE of the FIVE ORDERS, and the most necessary Observations concerning all sorts of BUILDING:

AS ALSO

The different Construction of PRIVATE and PUBLICK HOUSES, HIGH-WAYS, BRIDGES, MARKET-PLACES, XYSTES, and TEMPLES, with their Plans, Sections, and Uprights.

Revis'd, Design'd, and Publish'd

By *GIACOMO LEONI*, a *Venetian*, *Architect to His Most* SERENE HIGHNESS, *the Late* ELECTOR PALATINE.

Translated from the ITALIAN *Original.*

THE THIRD EDITION, CORRECTED.

With NOTES and REMARKS of

INIGO JONES:

Now first taken from his Original Manuscript in *Worcester* College Library, *Oxford.*

AND ALSO,

An APPENDIX, containing the ANTIQUITIES of *ROME.* Written by *A. PALLADIO.*

And a DISCOURSE of the FIRES of the Ancients.

Never before Translated.

IN TWO VOLUMES.

LONDON:

Printed for A. WARD, in *Little-Britain*; S. BIRT, in *Ave-Mary-Lane*; D. BROWNE, without *Temple-Bar*; C. DAVIS, in *Pater-noster-Row*; T. OSBORNE, in *Gray's-Inn*; and A. MILLAR, against St. *Clement's* Church in the *Strand.*

M. DCC. XLII.

A PARALLEL

OF

ARCHITECTURE

CONTAINING

IN FOUR BOOKS

A PARALLEL

OF THE

FIVE ORDERS

AND ALSO

A Short Treatise of the Five Orders of the Ancients:

Never before Translated.

WRITTEN BY A PALLADIO

AND ALSO

An APPENDIX, containing the ANTIQUITIES of ROME

Now first taken from his original Manuscript in Worcester-College Library, Oxford.

WITH NOTES and REMARKS &c.

THE THIRD EDITION, CORRECTED.

Architecture from the Italian of Palladio

EFFECTOR ... AVIT IN ...

Adapted to His Majesty's Buildings &c. by ...

BY GIACOMO LEONI, A Venetian

Knight, Doctor, and Palatine

Together with their Plans, Sections and Uprights.

HIGH-WAYS, BRIDGES, MARKET-PLACES, XYSTES &c.

The different Contrivance of PRIVATE and PUBLICK HOUSES

ADVERTISEMENT

FROM

The PROPRIETORS of this Third Edition.

THE late Dr. CLARKE, *Member of Parliament for the Univerſity of* Oxford, *being poſſeſs'd of an old Edition of* PALLADIO's Architecture, (*on which were wrote, by the Famous* INIGO JONES, *Notes and Remarks on the Plates;*) *bequeath'd it, with the reſt of his Library, to* Worceſter-College. *The Proprietors being inform'd of this, apply'd to the Preſident of the ſaid College, for Liberty to get a Copy of thoſe* Notes *and* Remarks. *This Favour was granted, on condition a Perſon well ſkilled in* Architecture *ſhould be ſent thither. Mr.* JAMES LEONI *was prevail'd on to undertake this, went to* Oxford *accordingly, and tranſcribed the* Notes *and* Remarks *from the* Manuſcript-Copy *of* INIGO JONES. *Some few of theſe are plated in the Side-margin, and the reſt* (*which make ſeveral Sheets*) *are added at the end of each Book. This, no doubt, will be eſteemed a very great Advantage to this Edition, by all who are Lovers of* Architecture, *and have a value for the Memory of the* Celebrated Architect *who made the Remarks.*

AT the end of the Second Volume is added, by way of Appendix, a Tract written by A. PALLADIO, *intitled,* The Antiquities of *Rome,* &c. *now firſt tranſlated from the* Italian.

AS theſe Additions have conſiderably increaſed the Expence of this Edition, the Proprietors hope they will give a general ſatisfaction to the Curious.

Preface to the First Edition.

I RESOLV'D from the beginning to ſpare no Expence, that I might rather ſurpaſs the Expectation of my Subſcribers, than come any way ſhort of it. This will more evidently appear by the great number of Copper Plates and Deſigns, which I have added over and above what I promis'd. Such as are true Judges will, by comparing the Draughts of Palladio *with mine, eaſily diſcern a vaſt difference. His Wooden Cuts I have chang'd into Copper Plates, which, for the greater Perfection of the Work, tho' much to my own Loſs, I have procur'd to be engrav'd in* Holland *by the famous Monſieur* Picart, *one of the beſt Maſters of that Art in* Europe. *I have not only made all the Draughts my ſelf, and on a much larger Scale than my Author; but alſo made ſo many neceſſary Corrections with reſpect to Shading, Dimenſions, Ornaments, &c. that this Work may in ſome ſort be rather conſider'd as an Original, than an Improvement. In the mean time I offer my Service, either in Perſon or otherwiſe, to ſuch Noblemen and Gentlemen as may have occaſion for me in the way of my Profeſſion.*

JAMES LEONI.

ANDREA PALLADIO (one of the moſt Learned Architects that *Italy* has produc'd, ſince the polite Arts begun to revive there) was born in *Vicenza*, a Town belonging to the Republick of *Venice*. His Parents were of mean Extraction, but in conſideration of his great Abilities, and as a reward for the honour he did his Native City, he was made free of the ſame, and receiv'd into the Body of the Nobility. He had for his Maſter the Celebrated *Giovanni Giorgio Triſſino*, under whom he not only learnt the moſt curious parts of Civil and Military *Architecture*, but likewiſe adorn'd his Mind with all ſorts of Erudition. He made it his chief Study to ſearch into the ſtately Monuments of old *Rome*, which he examin'd with unparallel'd Diligence and Attention. His Poſthumous Work of the *Roman Antiquities*, tho' imperfect, does yet ſufficiently ſhow how much he made himſelf Maſter of the Nobleſt Ideas of the Ancients; for walking through the rubbiſh and other remains of theſe, he diſcover'd the true Rules of an Art, which till his time were unknown; even to *Michel-Angelo* and *Brunelleſchi* his Contemporaries. The Exactneſs of his Deſigns can't be too much commended: 'tis pity that the Authors, who have made mention of him, are ſilent on the particulars of his Life. They have taken great pains in giving us a long Liſt of the fine Buildings wherewith he adorn'd his Country, but to little purpoſe; ſince we have them drawn and explain'd by himſelf, in the ſecond and third Books of his *Architecture*. He flouriſh'd in the 16th Century, and died in the Year 1580.

THE

THE AUTHOR's PREFACE.

MY natural Inclination leading me, from my very Infancy, to the Study of *Architecture*, I resolv'd to apply my self to it: And because I ever was of opinion, that the ancient *Romans* did far exceed all that have come after them, as in many other things so particularly in Building, I proposed to my self *Vitruvius* both as my Master and Guide, he being the only ancient Author that remains extant on this Subject. Then, I betook my self to the Search and Examination of such Ruins of ancient Structures as, in spight of Time and the rude Hands of *Barbarians*, are still remaining; and finding that they deserved a much more diligent Observation than I thought at first Sight, I began with the utmost Accuracy to measure every the minutest part by it self: And indeed, I became so scrupulous an Examiner of them (not discovering that any thing, of this kind, was perform'd, without the justest Reason and the finest Proportion) that I afterwards, not once only, but very often, took Journies to several parts of *Italy*, and even out of it, that I might be able, from such Fragments, to comprehend what the whole must needs have been, and to make Draughts accordingly. Whereupon, considering how widely different the way of Building, commonly in use, is from the Observations I made on the said Edifices, and from what I have read in *Vitruvius*, in *Leo Baptista Alberti*, and other excellent Writers since *Vitruvius*'s Time, as well as from Buildings of my own Performance, which raised my Reputation, and gave no small satisfaction to those who were pleased to employ me; I thought it an Undertaking worthy of a Man who considers that he was not born for himself only, but likewise for the good of others, to publish to the World the Designs (or Draughts) of those Edifices, which with equal Expence of Time and Danger of my Person, I have collected; and

briefly to ſet down what ſeem'd to me moſt worthy to be conſider'd in them; and further, to give thoſe Rules which I have hitherto follow'd in Building, and which I ſtill follow, to the end that they who ſhall read my Books, may be able to practiſe whatever they find uſeful in them, and to ſupply what is wanting, as many ſuch things there may be. Thus Men, by degrees, will learn to lay aſide the ſtrange Abuſes, the barbarous Inventions, the ſuperfluous Expences, and (what imports them more than all the reſt) to avoid the various and continual Ruins which have happened in ſeveral Buildings. I have moreover apply'd my ſelf to this Undertaking with the greater Alacrity, becauſe at this time I ſee abundance of others become ſtudious of this Profeſſion, many of whom are worthily and honourably mentioned in the Books of that rare Painter and Architect, *George Vaſari Aretino*; which makes me hope that the way of Building will be reduced to general Utility, and very ſoon arrive to that pitch of Perfection, which, in all Arts, is ſo much deſired. We appear to come very near it, in this part of *Italy*, ſeeing that not only in *Venice* (where all the polite Arts do flouriſh, and which City alone affords an Example of the Grandeur and Magnificence of the *Romans*) there begin to appear Fabricks of good taſte, ſince that moſt celebrated Carver and Architect, *Giacomo Sanſovino*, firſt introduced the true manner, as may be ſeen, not to mention his fine Performances in the new Palace of *Procuracy*, which is perhaps the moſt ſumptuous and the moſt beautiful Edifice that has been erected ſince the time of the Ancients; but alſo in ſeveral other Places of leſs renown, and particularly in the City of *Vicenza*, which tho' of no great Extent, yet is full of very refined Genius's, and ſufficiently abounds in Riches. There I had firſt occaſion to put that in practice, which I now publiſh for the common Good. As here may be ſeen divers fine Edifices, and many Gentlemen who are moſt ſtudious of this Art, and who, whether their Blood or their Learning be conſider'd, are not unworthy to be number'd among the moſt Illuſtrious, ſuch as *John George Triſſino*, the Ornament of our Age; the Counts *Marc Antony* and *Adrian de Thieni*, Brothers; *Antenor Pagello*, and many others; who having paſt to another Life, have eternized their Memory by the curious and rich Buildings they have left behind them. There are now living in the ſame City *Fabio Monza*, a knowing Perſon in many Subjects; *Elio de Belli*, the Son of *Valerio*, famous for Painting in Brooch* and Cutting of Cryſtal; *Antony Francis Oliviera*, who beſides the Knowledge

* *Pictures in one Colour are ſo call'd.*

ledge of many Sciences, is an excellent Architect and Poet, as he has demonstrated in his Herbick Poem, entitled *Alemana*, and by the House that he built at *Bosoli di Nanto*, a place of the *Vicentin*; and finally, to pass over several others that might reasonably lay a claim to the same Rank, *Valerio Barbaro*, a most diligent Observer of whatever any ways belongs to our Profession. But to return to our Subject, having designed to publish to the World the Fruits of those Labours, which, with the greatest Diligence from my Youth upwards, I have been collecting; as also the Searching and Measuring of those Ancient Buildings that any ways came to my Knowledge; and upon this occasion briefly to treat of Architecture in the most orderly and distinct method possible; I thought it most convenient to begin with the Houses of private Persons, as thinking it reasonable to believe, that these in time gave rise to publick Edifices, it being very probable that Men lived first asunder by themselves; and perceiving afterwards that they needed the Aid of others to make them happy, (if indeed there be any Happiness here) they naturally loved and desired the Company of other Men, whence, out of many Houses they made Villages, and out of many Villages Cities, in which they built publick Places and Edifices. Besides, as of all the parts of Architecture, none is more necessary than this for Mankind, nor any more frequently practised by them, I shall therefore in the first place treat of private Houses, and next of publick Edifices. I shall briefly write of Streets, Bridges, publick Places, Prisons, *Basiliche*, or Courts of Justice; *Xisti* and *Palestre*, (which were Places design'd for bodily Exercises) of Temples, Theatres and Amphitheatres, of Arches, of publick Baths, of Aqueducts, and last of all, the manner of fortifying Cities and Havens. In all these I shall avoid superfluity of Words, and will barely remark such things as shall appear to me most necessary, using those Terms and Names that are in common use with our present Architects. And because I dare make no other boasts of my self than what flow merely from the long and earnest Study, great Diligence, strong Passion and Affection wherewith I have pursued the Knowledge and Practice of what I now offer to the World; if it pleases *God* that I have not *laboured in vain*, I shall be thankful to his Goodness for it with all my heart; acknowledging my self obliged to those, who, from their fine Inventions and Experiments, have left us the Precepts of this Art; since thereby they have opened a more easy and expeditious way to the making of new Discoveries, and that by their means (which we ought thankfully to acknowledge) we are come to the Knowledge of many things, which otherwise had

perhaps remain'd ſtill unknown. This firſt part ſhall be divided into two Books; the firſt will contain the Preparation of the Materials, and being prepared, how, and in what form, to employ them from the Foundations up to the Roof: and here likewiſe will be contained thoſe general Rules which are to be obſerved in all Edifices, as well publick as private. In the ſecond I ſhall treat of the different Qualities of Buildings, ſo as to make them agreeable to Perſons of different Conditions: Firſt of Houſes in the City, and next of the moſt convenient Situations for Country-houſes, and how they ought to be moſt commodiouſly diſpoſed. But ſince in this kind, we have but very few ancient Originals, by which to be governed, I ſhall lay before you the Plans of ſeveral Houſes I have built for Gentlemen in divers places; and laſtly, the Ancients Deſigns of Country-houſes, with thoſe parts in them that were moſt remarkable, in the manner that *Vitruvius* has taught us, and that they themſelves built them.

CHAP.

THE FIRST BOOK.

CHAP. I.

Of Things to be conſider'd and provided, before one begins to Build.

THE firſt thing that requires our conſideration, when we are about Building, is the Plan, and the Upright of the Edifice we propoſe to erect. Three things, according to *Vitruvius*, are chiefly to be conſider'd, without which a Building cannot be of any value. Theſe are *Conveniency*, *Solidity*, and *Beauty*. For no Edifice can be allow'd to be perfect, if it be commodious and not durable; or, if being durable, it be ſubject to many inconveniencies; or, if having both ſolidity and conveniency, it has no beauty nor uniformity.

AN Edifice may be reckon'd Commodious, when every part of it has its proper place and ſituation, in reſpect to its dignity and uſes; having neither more nor leſs than theſe require: as when the Halls, Rooms, Cloſets, Galleries, Cellars, Garrets, *&c.* are fitly diſpos'd, and in their proper places. The Solidity of an Edifice depends upon the care of erecting the Walls very *plum*, and thicker below than above, with good and ſtout Foundations: taking care that the *pillars* above be exactly perpendicular over the *pillars* below, and that all the openings, as Doors and Windows, be one above the other, ſo that the ſolid be upon the ſolid, and the void upon the void. As for the beauty of an Edifice, it conſiſts in an exact Proportion of the parts within themſelves, and of each part with the whole: for a fine Building ought to appear as an entire and perfect body, wherein every member agrees with its fellow, and each ſo well with the whole, that it may ſeem abſolutely neceſſary to the being of the ſame.

THESE things conſider'd upon the Draught, or Model, the Charges of the whole are to be diligently computed, and all requiſite materials timely provided, that nothing be deficient, or hinder the finiſhing of the work: it being no little ſatisfaction and praiſe to the Builder, nor a ſmall advantage to the work it ſelf, if it is compleated with due expedition, and in all its parts together: becauſe, if all the Walls are rais'd at the ſame time, they will ſettle equally every where, and there will be none of thoſe Chinks or Cleſts, which are ſo common in the buildings finiſh'd at ſeveral times. Therefore having made choice of the moſt skilful Artiſts that can be had (to the end, that, by their advice, the Work may be better carried on) Bricks, Stones, Lime, Sand, Timber, and Metals, are to be provided in a ſufficient quantity; concerning which proviſion, I intend to lay down ſome very uſeful Obſervations: as for example; for framing the Floors of the Halls and Chambers, ſo many Joyſts are to be provided for, as when fram'd, there may remain between them the ſpace of a Joyſt and a half. Likewiſe concerning Stones, notice ought to be taken, that the *Jambs* of the Doors and Windows are not to be bigger than a fifth, and not leſs than a ſixth part of the opening.

And if the building is to be inriched with *Columns*, or *Pilaſters*, the *Baſes*, *Capitels*, and *Entablature*, may be made of Stone, and the reſt of Bricks. As for the Walls, they ought to diminiſh according as they riſe. Theſe Conſiderations rightly apply'd, will help to leſſen the Expences of the work. But becauſe I am to diſcourſe about all theſe things in particular, 'twill be ſufficient to have given here this general hint as a rough draught of the whole Building. And as the quality and goodneſs of the materials, are as much to be enquir'd into, as the quantity of them, the experience of thoſe who have built before, will be a great help to determine what is fit and expedient to be done. And tho' *Vitruvius*, *Leo Baptiſta Alberti*, and other excellent Maſters, have given us their opinions of the choice of Materials; yet that nothing be wanting in this Book, I ſhall ſubjoin my own Obſervations to the moſt neceſſary of theirs.

CHAP. II.

Of TIMBER.

TIMBER, according to *Vitruvius* (Book 2. Chap. 9.) ought to be cut down in autumn, and during the winter; becauſe the Strength, which, in the ſpring and ſummer, was diſpers'd through the leaves and fruits of the trees, is then gather'd into the trunk and boughs: and if it is fell'd in the wane of the Moon, then it is free from a certain moiſture which is apt to breed worms, and to rot the wood. Timber ſhould be cut at firſt only to the pith, and ſo left until it be dry, that the rotting moiſture we have ſpoken of, may the eaſier drop down and paſs away. Being cut, it muſt be laid under ſhelter from Sun and Rain, chiefly that ſort of wood which grows of it ſelf, that is, without being ſow'd or planted, for fear it ſhould chop: and in order to make it grow dry equally, it will be very proper to daub it over with Cow-dung. It ſhould not be drawn home through the Dew, but rather in the afternoon; neither ought it to be wrought, if it is wet or too dry, becauſe it would make it warp and occaſion clumſy work: nor will it in leſs than three Years be dry enough to uſe it in Planks, Doors, and Window Frames. 'Tis expedient for thoſe who undertake a building, if they want skill in this, to inform themſelves from men who are throughly acquainted with the nature of Timber, that they may judge which is fit for ſuch or ſuch uſes, and which not. *Vitruvius*, in the above quoted Chapter, gives good inſtructions on that head; beſides many more who have written at large on the ſame Subject.

CHAP. III.

Of STONES.

THERE are two ſorts of Stones, natural and artificial. The natural are dug out of the Quarry, and either fit to make Lime (of which we ſhall ſpeak more at large hereafter) or to be employ'd in making the Walls of Buildings; and of theſe laſt there are ſeveral ſorts. Some extreamly hard, as Marble, and ſuch other living Stones, as they are call'd: ſome leſs hard, as Free-ſtone: others ſoft,

as Chalk. Marble and Free-ſtone may be wrought as ſoon as dug, for they will be then more eaſy to work, ſince the longer they are out of the Quarry they become the harder. But as to ſofter Stone, it ought to be dug in ſummer, be expos'd to the Air, and not to be uſed within two Years; eſpecially when the nature of the Stone is not well known, as when 'tis dug in a place from whence none has been yet taken: for being expos'd to Wind, Rain and Froſt, it grows hard by degrees, and more capable to bear the Weather. Another reaſon why it ſhould be left ſo long is, that thoſe which are damag'd may be laid aſide, to be uſed in Foundations, and other places not expos'd to ſight; and that the others which are well ſeaſon'd may be employ'd in the outſide work, becauſe then we may be ſure that after ſuch a trial, they will laſt long.

ARTIFICIAL Stones, which from their form are commonly call'd *Quadrels*, alias *Bricks*, are made of a chalky, whitiſh, and ſoft Earth, without any mixture of Clay or Sand, which is to be carefully ſeparated. The Earth is to be dug in autumn, and temper'd in winter, that the Bricks may be moulded in the ſpring: But if neceſſity forces to make them in winter or ſummer, they muſt be cover'd in winter with dry Sand, and in ſummer with Straw. When made, they require a long time to dry, and 'tis beſt to dry them under ſhelter, that both the middle and the outſide may be equally hardned, which can't be done in leſs than two years. They may be made bigger or ſmaller, according to the nature and quality of the Building, and the uſe to which they are deſign'd. The Ancients made their Bricks for publick and great Buildings, larger than thoſe for ſmall and private ones. The bigger ſort ought to have ſome holes left here and there, that they may dry and burn the better.

The Earth for Bricks muſt be dug in Autumn, wrought in Winter, and made Bricks in Spring.

CHAP. IV.

Of SAND.

THREE ſorts of Sand are commonly uſed in Buildings; Pit-Sand, River-Sand, and Sea-Sand. Pit-Sand is the beſt of all, and is either black, white, red, or cindry; which laſt is a ſort of Earth burnt by Fire inclos'd in the Mountains, and very common in *Tuſcany*. There is alſo in *Terra di Lavoro*, in the Territories of *Baiæ* and *Cumæ*, a Sand by *Vitruvius* call'd *Puteolana*, which knits together very ſoon in Water, and makes Mortar exceeding ſtrong. It has been found by long experience, that of all Pit-Sand, the white is the worſt; and of River-Sand, that which is in the rapid ſtreams, and under falls of water, is the beſt, becauſe it is the cleaneſt. The Sea-Sand is the worſt of all; however it ought to be blackiſh and to ſhine like Glaſs: the biggeſt and neareſt the ſhore is the beſt. Pit-Sand being the fatteſt makes the ſtrongeſt Mortar, and is therefore to be uſed in Walls and long Vaults, but 'tis apt to crack. River-Sand is very good for *rendring* and *rough-caſting* of Walls. But the Sea-Sand, being ſoon wet and ſoon dry, and apt to melt away by reaſon of its Salt, is unfit to bear any weight. The beſt Sand in its kind of any of theſe ſorts, is that which being handled and ſqueez'd between one's Fingers, crackles or makes a noiſe; or, if being put upon a white cloth, it neither ſtains nor dirties it. That which mingled with Water makes it ſlimy and muddy, is very bad: as alſo that which has for a long

Three ſorts of Sand; of Pits, of Rivers, and of the Sea; that of the Pit is the beſt.

There is another ſort of Duſt or Sand, in *Italian* called *Pozzolana*, which makes a ſtrong Mortar, and binds preſently.

Sea-Sand is the worſt of all for Mortars.

long time been expos'd to the Air, Sun, Moon, or Froſt; becauſe it gathers much earth and rotten humour, apt to bring forth ſhrubs and other wild plants, which are very prejudicial to Buildings.

CHAP. V.

Of LIME, *and how to work it.*

Stones proper to make Lime, are thoſe of Mountains and of Rivers or Torrents, which are very good: this Lime is moſtly uſed to plaiſter the outſide Walls; for it makes neat Work, and white.

LIME-Stones are either dug out of Hills, or taken out of Rivers. Thoſe of the Hills are good, if they are dry, free from any moiſture, and naturally brittle; having no mixture of any thing in them, which after paſſing the fire, might make the Stone leſs. The beſt Lime therefore is made of the hardeſt, heavieſt, and whiteſt Stones; and which, being burnt, remain about a third part lighter than before. There is alſo a ſort of ſpungy Stone, which makes very good Lime, for *rendring* of Walls. In the Hills of *Padua*, they dig a certain rugged and ſcaly Stone, whoſe Lime is very good for works expos'd to the Weather, or in the Water, becauſe it hardens immediately, and laſts a long time. All dug Stones are better to make Lime, than the gather'd ones; and rather thoſe that come from a ſhady and moiſt pit, than from a dry one; and the white better than the brown. Pebbles, eſpecially white ones, that are gather'd in Rivers and rapid Streams, make excellent Lime; the work done with it is very white and neat, therefore 'tis commonly uſed in *finiſhing* of Walls. All ſtones, of what ſort ſoever, are ſooner or ſlower burnt, according to the Fire given them; but generally they are burnt in 60 Hours. The Lime being taken out of the Kiln, to ſlack it well, water muſt be pour'd upon it by degrees, and at divers times, till it is well temper'd. It muſt be left afterwards in a ſhady place, without any mixture, only covered lightly with Sand; and when 'tis to be uſed, the more it is beat and mixt with the Sand, the better and ſtronger it will be, except that which is made with the ſcaly Stone of *Padua*; becauſe it muſt be employ'd as ſoon as kiln'd, otherwiſe it waſtes and burns away. To make good Mortar, Sand is to be mixt in ſuch a proportion, that one part of Lime be put with three parts of Pit-Sand, and two parts only of River or Sea-Sand.

The Stones for Lime may be burnt in ſixty Hours, and muſt be kept in a moiſt and ſhady place.

Three parts of Pit-Sand to be mixt with one of Lime, and two of River or Sea-Sand with one of Lime, for good Mortar.

CHAP. VI.

Of METALS.

THE Metals uſed in Building are Iron, Lead, and Copper. Iron is fit to make Cramps, Spikes, Nails, Hinges, Bolts, Chains, Locks, and the like works. It is no where found pure; but when the Ore is dug, 'tis purged by the Fire, which renders it liquid; and before 'tis cool, its foulneſs may be eaſily taken away. And after it is ſo purg'd and cool'd, it becomes ſoft and eaſy to be wrought and beat out with the Hammer; but it can't eaſily melt again, except it is put into a furnace made for that purpoſe. If, being red-hot, it is not quickly beat and work'd, it waſtes away. It will be a ſign of its Goodneſs, if being made into Bars, its veins are continu'd ſtrait, without interruption, and if the ends of the Bars are clean and without ſoil, or ſcum; becauſe the ſtreightneſs of its veins

ſhews

ſhews the Iron to be without knots, puffs, or flaws: and one may judge of the middle by the ends being forg'd into ſquare plates, or any other Figure; and if the ſides are even, one may conclude that it is equally good every where, having equally endur'd the Hammer.

LEAD ſerves to cover magnificent Palaces, Towers, Churches, and other publick Buildings: as alſo to make gutters and pipes to convey Water. It is likewiſe uſed in faſtning all manner of Iron-work in Stone, as for example hooks to hang Gates, *&c.* There are three ſorts thereof, white, black, and of a colour between both, call'd by ſome Aſh-colour. The Black is ſo call'd, not becauſe 'tis really black, but only becauſe it has ſome black ſpots intermixt with its whiteneſs; and therefore to diſtinguiſh it from the other ſort, the Ancients have call'd it black. The White is the moſt perfect of the three. The Aſh-colour is between both. Lead is dug in great natural Lumps, or in ſmall ſhining blackiſh pieces; or elſe in very thin Leaves which ſtick in Rocks, Marble, Pebbles, Flints, and other Stones. All ſorts of Lead are eaſily melted, becauſe the heat of the Fire makes it Liquid, before it is red-hot; but if 'tis put into a very hot Furnace, it loſes its ſubſtance, and changes partly into Litharge, what remains being nothing but ſcum. Of theſe three ſorts of Lead the black is the ſofteſt, and conſequently very eaſily wrought, but it is heavier than the others. The white is harder and lighter; the Aſh-colour is much harder than the white, but of a middle weight between both.

COPPER is ſometimes uſed to cover publick Buildings. The Ancients were wont to make a ſort of hook, or cramp with it, to faſten the Stones one with another: by the help of thoſe cramps, a Building was rendred a great deal ſtronger and more durable. The cramps, we now moſt commonly uſe, are made of Iron, but the Ancients made them oftner of Copper, becauſe that Metal, being not ſubject to ruſt, it laſts longer. The Letters for Inſcriptions, which they plac'd in the *Entablatures* of their Buildings, were alſo made of that Metal, of which ſeveral Authors affirm, that the hundred famous Gates of *Babylon* were alſo made: as likewiſe the two Pillars of *Hercules* eight Cubits high, in the Iſle of *Gades*. The Copper is eſteem'd the beſt, which being drawn from the Mine, and purg'd by the Fire, is red with a yellow caſt, and full of Pores; for 'tis a ſign of its cleanneſs, without any droſs. Copper may be heated like Iron, and made liquid, ſo that it may be caſt; but if the Fire is too hot, it will not endure it, but totally conſume away. This Metal, altho' very hard, is yet very pliable, and dilates it ſelf into very thin Leaves. 'Tis beſt preſerv'd when dipt in Tar; for tho' it does not ruſt like Iron, yet it has a kind of ruſt peculiar to it ſelf called *Ver-de-greaſe*, eſpecially if it touches any ſharp moiſture. Of this Metal mixed with Tin, Lead, and Latten (which laſt is another ſort of Copper colour'd with *Lapis Calaminaris*) is made a Metal call'd Braſs, which oftentimes Architects do uſe in *Baſes* and *Capitels* of Pillars, Statues, Vaſes, and ſuch like Ornaments. There are at *Rome* four Columns of Braſs in the Church of St. *Giovani de Laterano*, one only of which has its *Capitel*. *Auguſtus* had them caſt out of the Braſs taken from the Prows of thoſe Men of War, that he took from *Marcus Antonius* in *Epirus*.

THERE remain alſo in *Rome*, to this day, four ancient Gates, *viz.* that of the *Rotunda*, formerly the *Pantheon*: that of St. *Adriano*, which was the Temple of *Saturn*: that of St. *Coſmo* and *Damiano*, which was the Temple of *Caſtor* and *Pollux*, or rather of *Remus* and *Romulus*; and that of St. *Agnes*, without the Gate *Viminalis*. But the fineſt of all theſe, is that of St. *Maria Rotunda*, wherein

the Ancients endeavour'd to imitate by art that kind of *Corinthian* Metal, in which the natural Colour of Gold did prevail; for we read that when *Corinth* was deſtroy'd and burnt, all the Gold, Silver, and Copper, which was in that flouriſhing City, being melted and mix'd together into ſeveral lumps, they were ſo variouſly temper'd, that it made the three ſorts of Metal, which afterwards were called *Corinthian*. That, in which Silver prevailed, remain'd white; where Gold, it took the yellow; and the third was that, in which all theſe three Metals were of a pretty equal quantity. Theſe three ſorts of Metal have been ſince imitated by Workmen, in many different ways.

HITHERTO having diſcours'd of thoſe things which are to be conſider'd and provided, before one thinks of Building, it now remains that ſomething be ſaid of Foundations, ſince the Work by them muſt begin.

CHAP. VII.

Of the Qualities of the Ground, wherein Foundations are to be laid.

WHAT we call the Foundation of a Building is properly the *Baſis* of it, that is to ſay, that part which is under Ground, and ſupports what appears above. Of all the faults therefore which are committed in Building, thoſe about the Foundations are the moſt prejudicial to it; becauſe they endanger the whole Fabrick, and they can't be rectify'd without great difficulty and expence. The Architect therefore ought to be extraordinary nice in the ſetting of the Foundation, ſince in ſome places it is ſolid enough from the nature of the Soil, and in other places it is neceſſary to be made ſo by Art.

A NATURAL Foundation is, when the Soil is rocky, or of a ſoft ſandy Stone, or Gravel; for then without digging, or other helps of art, the earth it ſelf is an excellent Foundation, and capable to bear the greateſt Building both in Land and Water. But if nature affords not a Foundation, it muſt be compaſs'd by Art; and then the place to build upon, is either a ſolid Earth, or Clay, or 'tis Sand, or ſoft and moiſt Ground, or marſhy Land. If the Earth is firm and ſolid, one may dig ſo far as to a diſcreet Architect may ſeem requiſite for the quality of the Building, and the ſoundneſs of the earth it ſelf. If no Cellars or other underground Offices are intended, a ſixth part of the height of the Building may be a ſufficient depth. One may judge of the firmneſs of the Earth by digging of Wells, Ciſterns, and ſuch like. 'Tis alſo known by Herbs growing upon the place, as if ſuch do uſually grow only in firm and ſolid Ground; or if a great weight be thrown thereon, it neither reſounds nor ſhakes; and from the report of a Drum, being ſet on the Ground, and if lightly touch'd, it does not ſound again; or if Water put in a veſſel does not ſhake. The neighbouring places will alſo help one to know the firmneſs of the Earth. But if the place be ſandy or gravelly, it is to be conſider'd whether it be on Land or in Water; becauſe if it be on Land, it will be ſufficient to obſerve what has been already ſaid concerning ſolid Ground: but if you are to build in Water, the Sand, or Gravel is altogether uſeleſs; becauſe the Water, by its continual ſtream and flood, changes its Bed. Therefore one muſt dig till a ſolid bottom is found; but if that can't be done, or is judg'd to be difficult, then dig ſomewhat in the Sand or Gravel, and ſo drive Piles whoſe ends may reach to the ſound and good Earth, and upon thoſe

Piles cover'd with Planks one may venture to build. But if there is a neceſſity to build upon a looſe or made Ground, then one muſt dig as far as the ſolid and ſound Earth, and therein alſo in proportion to the bigneſs of the Walls, and the greatneſs of the Building.

THE ſolid ground fit to build upon, is of divers ſorts; for, as *Leo Baptiſta Alberti* well remarks, it is in ſome places ſo hard as ſcarce to be open'd with the proper Tools, nay ſometimes as hard as Iron it ſelf: in other places blackiſh, in ſome places whitiſh, which is accounted the weakeſt; in ſome places like Chalk, in others Sandy. Of all theſe the beſt is that which is cut with more difficulty, or if being wet, it does not diſſolve into dirt.

NO Foundation ought to be dug on the Water-ſide, before one has carefully ſounded the bottom. If it is marſhy and ſoft, then it ought to be ſtrengthen'd with Piles, whoſe length muſt be an eighth part of the height of the Wall, and thick by a twelfth part of their length. The Piles muſt be drove in as cloſe as poſſible, and ramm'd with blows rather quick than heavy; ſo that the Earth may the better conſolidate and faſten. Not only the Out-Walls are to be ſupported in that manner, but alſo the inner and croſs-Walls; for if the Foundation for the inward-Walls differ from thoſe without, then laying the Girders along one by the other, and the Joyſts croſs upon them, it may happen that the inward Walls ſhall ſink, when at the ſame time, the Out-Walls being upon Piles, ſhall not ſtir: both of them conſequently will crack, and cauſe the ruin of the whole. Therefore the Expence of the Piles being leſs to be fear'd than the falling of the Building; the Piles muſt not be ſpar'd, but diſtributed according to the proportion of the Walls, thoſe in the middle being plac'd ſomewhat thinner than thoſe without.

CHAP. VIII.

Of FOUNDATIONS.

THE Foundations ought to be twice as thick as the Walls to be rais'd upon them, ſo that both the quality of the Earth and the greatneſs of the Building are to be regarded, making the Foundation larger in a ſoft and looſe Ground, or where there is a great weight to be ſupported. The *plane* of the Trench muſt be level, ſo that the weight may preſs equally every where; and not inclining more on one ſide than the other, which occaſions the cleaving of the Walls. For this reaſon the Ancients uſed to pave the *plane* with *Tivertine*, but we moſt commonly uſe to lay Planks or Beams to build on. The Foundations ought to be made ſloping, that is to ſay, to diminiſh as they riſe; but yet in ſuch a manner, that the middle of the Wall above may fall *plum* with the middle of the loweſt part; which muſt be alſo obſerv'd in the diminution of Walls above Ground, becauſe by that means the Building becomes much ſtronger, than by making the diminution any other way.

SOMETIMES to avoid Charges (eſpecially in mooriſh Grounds, where there is a neceſſity to uſe Piles) Foundations are arch'd like a Bridge, and the Walls are built upon thoſe Arches. In great Buildings 'tis very proper to make vents through the body of the Walls from the Foundations to the Roof, becauſe they let forth the Winds and other Vapours, which are very prejudicial to Buildings; they leſſen the

the Charges, and are of no ſmall conveniency, eſpecially when there is occaſion for winding-ſtairs from the bottom to the top.

CHAP. IX.

Of the ſeveral ſorts of Walls.

THE Foundations being laid, it remains that we treat of the Elevation of the Walls above ground. The Ancients had ſix ſorts of Walls, one of which call'd *Reticulata*, or *Net-work*: another of *Quadrels*, or Bricks: the third of *Cement*, which is a mixture of Flints, or Pebbles and Earth roughly laid with, or without Morter: the fourth made of various Stones, and call'd *Ruſtick*: the fifth of ſquar'd Stones: the ſixth called *Rimpiuta*, or *Coffer-work*. The *Net*, or *Chequer-work* is no more in uſe at this time; but becauſe *Vitruvius* relates that it was common in his time, I would not omit to give here the deſign of it.

THE Corners of the Building, or Wall, were made of Bricks; and between every two Foot and a half, three courſes of Bricks were laid as a band to the whole work.

PLATE I.

A. *Corners of Bricks.*
B. *Courſes of Bricks which bind the whole Wall.*
C. *The Net or Chequer-work.*
D. *Courſes of Bricks through the thickneſs of the Wall.*
E. *The inward part of the Wall made of Cement.*

BRICK-WALLS, both thoſe which incloſe a City, and thoſe deſigned for a great Edifice, muſt be fac'd on both ſides with Bricks, and the middle fill'd up with Cement, ramm'd together with Brick-bats: and to every three Foot in height there muſt be three courſes of Bricks of the biggeſt ſort through the whole breadth of the Wall; the firſt courſe being laid the leſſer part out-ſide; the ſecond the length laid ſide-way; the third as the firſt; and ſo forth. Of this ſort are the Walls of the *Rotunda* in *Rome*, and the Bath of *Diocletian*, and moſt of all the other ancient Buildings.

PLATE II.

E. *Courſes of Bricks which bind the whole Wall.* F. *The middle part of the Wall made of Cement.*

THE walls of *Cement* muſt be order'd in ſuch a manner, that to every two Foot at leaſt, there be three courſes of Bricks diſpos'd as before. The Walls of *Turin* in *Piemont*, have been made after that manner, that is of large River-pebbles ſplit in the middle, which, being laid with the ſplit-ſide outwards, make very ſmooth work and agreeable to look upon.

THE Walls of the *Arena* in *Verona* are likewiſe of Cement, and to every three Foot, there are three courſes of Bricks. In like manner are built many ancient Edifices which I have mention'd in my book of *Antiquities*.

PLATE III.

G. *Cement, or River-Pebbles.* H. *Courſes of Bricks which bind the whole Wall.*

THE Walls made of uncertain, or irregular Stones of different ſorts, were call'd *Ruſtick*, by reaſon of the various ſhapes of the Stones. In the building of theſe Walls they made uſe of a leaden Rule, which being bended according to the place where the Stone was to be laid, ſhew'd how it was to be form'd and ſquar'd; ſo

ſo that without any more ado, the Stone was fix'd in its deſign'd place. Of this ſort may be ſeen the Walls at *Preneſte*, and the ancient Streets were paved in this manner.

PLATE IV.

I. *Irregular or Ruſtick Stones.*

WALLS of Free-ſtones may be ſeen at *Rome* in that place, where were formerly the *Piazza* and the Temple of *Auguſtus*, in which the leſſer Stones were inclos'd with ſome Courſes of greater ones.

PLATE V.

K. *Courſes of leſſer Stones.*
L. *Courſes of larger Stones.*

THE Ancients uſed to make Walls called *Reimpiuta*, that is fill'd up with ragged Stones, which is alſo call'd *Coffer-work*, taking Planks and placing them edge-way in two rows diſtant one from another, to the thickneſs they intended to give the Wall; filling the ſpace between thoſe two rows of Planks with *Cement*, Stones of all ſorts, Earth and Mortar mingled together: and ſo they went on from Courſe to Courſe. Such Walls are ſeen at *Sirmion* upon the Lake *di Guarda*.

PLATE VI.

M. *Planks put edge-way.*
N. *The inward part of the Wall.*
O. *The Face of the Wall, the Planks being taken away.*

OF this kind may be call'd the ancient Walls of *Naples*, which are made of two rows of free Stones four Foot thick, and ſix Foot diſtant the one from the other: theſe two rows of Stones are bound together with other croſſing-rows, ſo the Space or *Coffers*, which were between the croſſing-rows and the out-rows of Stones, being four foot ſquare, were fill'd up with Stones and Earth.

PLATE VII.

P. *The outward-rows of Stones.*
Q. *The croſſing-rows.*
R. *Coffers filled with Stones and Earth.*

THESE, in a word, are all the forms which the Ancients gave to their Walls, the Foot-ſteps whereof are yet to be ſeen; from whence one may eaſily conclude, that Walls of what ſort ſoever they be, ought to have ſome chief courſes of a larger and harder matter than the reſt, to ſerve like Sinews to hold faſt all the other parts together, which chiefly is to be obſerv'd, when Walls are made of Bricks: to the end that, if in proceſs of time the Walls ſhould happen to ſink, or give more on one ſide than the other, the reſt might not become likewiſe ruinous: as has happen'd in many Walls, eſpecially on that ſide that looks towards the North.

CHAP. X.

Of the Method which the Ancients did practiſe, in erecting their Stone-Buildings.

WHEREAS it happens ſometimes that Buildings are made, the whole, or a good part of Marble, or of ſome other great Stones; I think it very proper here to explain what the Ancients did on ſuch occaſions, becauſe it is to be obſerv'd in their Works, that they were ſo nice in the joining of their Stones together, that ſometimes the Joints are difficult to be perceiv'd: which every one ought carefully to conſider, who, beſides the Beauty, deſires alſo the ſolidity and laſtingneſs of the Work. As far as I can underſtand, they firſt ſquar'd and wrought thoſe ſides of the Stones, which were to be laid one upon the other, leaving the other ſides rough, ſo that the edges of the Stones being thicker, men might move them with leſs danger of breaking or bruiſing them, than if they had been ſquar'd, and conſequently thinner, on all ſides before. In this manner they made their Stone Buildings *ruſtick*, or rather rough, till they had quite erected them to the very top; after which they went on working and poliſhing that face of the Stone which was expos'd to the ſight. It is true that the *Roſes* which are between the *Modilions*, and ſuch other like Ornaments of the *Cornice*, which could not conveniently be work'd after the fixing of the Stones, were made before while they lay on the Earth. This may be eaſily obſerv'd in ſeveral ancient Edifices, where many Stones remain rough and unpoliſh'd, juſt as they were laid. The Arch near the old Caſtle in *Verona*, and all the other Arches and Buildings there, were done in the ſame manner; as it appears by the very marks of the Tools, which ſhew how the Stones were wrought. The *Trajan* and *Antonine* Columns at *Rome* were alſo wrought in that manner; otherwiſe they could never have ſo exactly join'd the Stones, as to meet ſo cloſely croſs the Heads, and other parts of the Figures. The ſame I ſay of other Arches that are to be ſeen. When they went about ſome great piece of Building, as the *Arena* in *Verona*, the Amphitheatre of *Pola*, and the like, to ſave the exceſſive charge and length of time, which the finiſhing of ſuch Works would have requir'd, they wrought only the *Impoſts* of the Arches, the *Capitels* and *Cornices*; and left the reſt *ruſtick*, having only regard to the beauty of the whole Fabrick. But in their Temples, or rather ſumptuous Buildings, which requir'd more Curioſity, they ſpar'd no pains nor coſt in the working them; poliſhing and glazing even to the very *Channelling* or *Flutes* of the Columns, with great exactneſs. Therefore in my judgment, Brick-walls ought not to be *ruſticated*, much leſs the Mantles of Chimneys, which require the moſt curious Workmanſhip: for beſides the miſapplying of that ſort of work, it would look as if one had a mind to make a thing, which naturally ought to be entire, appear to be divided and made of ſeveral pieces. But indeed, according to the greatneſs and quality of the Building, it may be made either *ruſtick*, or after a more elegant manner: for what the Ancients did with Reaſon, when they were neceſſitated by the greatneſs of their Edifices; we ought not to imitate, when ſmaller Buildings require neatneſs.

CHAP.

CHAP. XI.

Of the Diminution of the Walls, and the parts of the ſame.

IT is to be obſerv'd, in the erecting of the Walls, that they ought to diminiſh proportionably, as they are rais'd and grow higher. That part therefore which appears above Ground, is to be one half thinner than the Foundations; and the ſecond Story half a Brick thinner than the firſt Story, and ſo ſucceſſively to the top; but ſtill with ſuch diſcretion, that the upper-moſt part of all be not too weak. The middle of the upmoſt Wall ought to be perpendicular with the middle of the nethermoſt, ſo that the whole Wall becomes of a *pyramidal* form. But if there is a neceſſity to make one of the two ſuperficies of the Walls *plum*, it muſt be inwardly; becauſe the Floors, the Vaults, the croſs-Walls, and other Supporters of the Building, will keep the out-Walls from falling, or giving way. The diſcharg'd parts of the outſide may be cover'd with a *Faſcia* or *Cornice*, incompaſſing the whole Building, which will be both an Ornament and a Binding to the whole Fabrick.

THE Angles, being common to two Faces, in order to keep them upright and faſt together, muſt be made very ſtrong, and held with long and hard Stones as it were with Arms: wherefore the Windows, and other like openings, ought to be made far from the Angles; or at leaſt ſo much ſpace muſt be left between them and the ſaid openings, as is the breadth of any of the openings.

HAVING ſpoken hitherto of mere Walls, 'tis now time we ſhould paſs to their Ornaments, the greateſt of all which are the *Columns*, when they are fitly plac'd, and in their due proportion with the whole Fabrick.

CHAP. XII.

Of the five Orders uſed by the Ancients.

THE ancient Architects have made uſe of five different Orders call'd by them, the *Tuſcan*, *Dorick*, *Ionick*, *Corinthian*, and *Compoſite* Orders. Theſe, in a Building ought to be diſpos'd in ſuch a manner, that the ſtrongeſt be always ſet lowermoſt, as being more capable of bearing the weight, and alſo to give the Building a more ſure Foundation: wherefore the *Dorick* muſt always bear the *Ionick*, the *Ionick* the *Corinthian*, and the *Corinthian* the *Compoſite*. The *Tuſcan* is ſo rude and material, that it is ſeldom uſed above ground, unleſs it be for a *Ruſtick* Edifice of one Order only; or in ſome vaſt Building, as *Amphitheatres* and ſuch like, which having many Orders one upon the other; this, inſtead of the *Dorick*, is plac'd under the *Ionick*. But if an Architect has a mind to leave out one of them, and place (for Example) the *Corinthian* immediately over the *Dorick*, it may be done; provided always, according to the rule aforeſaid, that the more ſolid be the loweſt. I ſhall ſet down the meaſures and proportions of each of theſe Orders, not ſo much according to *Vitruvius*, as to my own Obſervations on the ancient Buildings: But firſt it ſeems neceſſary to explain thoſe things which belong to all the Orders in general.

CHAP. XIII.

Of the ſwelling and diminution of Columns and Pilaſters, which divide and ſupport the Arches.

*THE Columns of every Order agree in this, that the upper part is to be leſſer than the lower, with a little ſwelling about the middle. In the diminiſhing of them it muſt be obſerv'd, that by how much longer they are, by ſo much the leſs they muſt diminiſh, becauſe the height has already the effect of diminiſhing them by the diſtance. Therefore if the Column is 15 Foot high, the Diameter of it, towards its *baſis*, muſt be divided into 6 half parts, to give 5 halfs of them to the diameter next to the *Capitel*. If the Column be from 15 to 20, the ſaid diameter below ſhall be divided into ſeven parts, 6 halfs of which muſt be the diameter above. So likewiſe in thoſe from 20 to 30 the lower diameter ought to be divided into 8 parts, and 7 of them ſhall be the upper diameter: and ſo proportionably for the higheſt, as *Vitruvius* teaches in his 2d Chapter of his 3d Book. But as to the method of making the *ſwelling* part of the Column, we have no more from that Author, but a bare promiſe, and therefore many have written as they thought beſt upon that ſubject. For my part, I am wont to make the profil of the ſaid *ſwelling* in this manner. I divide the *ſhaft* of the Column into three equal parts, drawing the lower third part perpendicular, at the extremity of which I lay a thin bending Rule, as long as the Column, or a little more; and bending that part of the Rule, till the end touches at the point of the diminution under the *Collarino*, or *Aſtragal*, I follow the bent of the Rule, and ſo the Column becomes ſomewhat ſwelled in the middle, and diminiſhes towards the top very handſomely. And altho' I could not contrive a ſhorter, or eaſier way, or which has a better ſucceſs in practice; yet I was the more confirm'd in this method, ſince after having told *Peter Cattaneo* of it, he was ſo much pleas'd with it, that he has mention'd it in his fine Treatiſe of Architecture, with which he has not a little illuſtrated our Profeſſion.

AB. *The third part of the Column which is perpendicular.*
BC. *The two thirds which are gradually diminiſhing.*
C. *The point under the* Collarino *or* Aſtragal, *where the Diminution ends.*

THE *Inter-columns*, that is to ſay, the ſpaces between the Columns, may be made of a diameter and a half of the Column (the diameter being always taken at the lower part of the Column) or of two diameters, of two and a quarter, ſometimes of three, and ſometimes of more. The Ancients notwithſtanding never gave more than three diameters, except in the *Tuſcan* Order; in which, the *Architrave* being made of Timber, they kept the *Inter-columns* very large: but on the other hand, they never made them leſs than a diameter and a half; they allow'd this ſpace, eſpecially when the Columns were to be extremely high. But amongſt ſuch variety of *Inter-columns*, that of two diameters and a quarter was look'd upon as the moſt noble and moſt beautiful of all.

'TIS

* *Plate* VIII.

'Tis of abſolute neceſſity, to keep a certain proportion between the Columns and the *Inter-columns*: for leaving too much vacancy between ſmall Columns, they will loſe a great deal of their Beauty, becauſe too great a quantity of Air between them, diminiſhes conſiderably their thickneſs: and on the contrary, in leaving too little ſpace between great Columns, the ſtreightneſs of the vacancy will make them appear too thick, and without any grace. Therefore if the ſpaces exceed three diameters, the Columns ought to have in thickneſs the ſeventh part of their height, as I ſhall obſerve hereafter in the *Tuſcan* Order. But if the ſpaces are to be of three diameters, the length of the Columns muſt be 7 and a half or 8, as in the *Dorick* Order: if 2 and a quarter, the length of the Column muſt be 9, as in the *Ionick*: if 2 only, the Column muſt be 9 and a half, as in the *Corinthian*: laſtly, if 1 and a half, the Column ſhall have 10 diameters, as in the *Compoſite*. Upon theſe Orders I have made ſuch Obſervations, that they may ſerve for Examples in all the Inter-Columns, which *Vitruvius* has mention'd in the 2d Chapter of his 3d Book aforeſaid.

In the front of Buildings the Columns ought to be an even number, that ſo the middle *Inter-column* being left bigger than the reſt, the Doors and Entries, which are uſually placed in the middle, may be the better ſeen; and thus much for ſingle Pillars, or *Collonades*. But if Galleries are to be made with Arches and Peers, the Arches muſt be diſpos'd in ſuch a manner, that the *Pilaſters* or *Peers* between the Arches, be no leſs than a third part of the vacancy between two Pilaſters, and thoſe at the corner muſt be two thirds of the ſaid vacancy, that the Angles of the Building may be ſo much the firmer and ſtronger. And when they are to ſupport an extraordinary weight, as in a very large Fabrick, then they muſt be the half of the vacancy, which may be ſeen in the Arch of *Vicenza*, and in the Amphitheatre of *Capua*: or elſe two thirds, as thoſe of the Theatre of *Marcellus* at *Rome*, and in that of *Ogubius*, which now belongs to *Ludovico de Gabrielli* a Gentleman of that City. The Ancients made them ſometimes as large as the whole ſpace, as in the Theatre of *Verona*, in that part which is not on the Hill. But in private Buildings, they are not to be made leſs than a third of the ſpace, nor larger than two thirds; and altho' they ought to be ſquare, yet to ſave charge, and to make more room to walk by, they may be made leſs in the Flank than in the Front: and to inrich the ſame, Half-Columns, or Pilaſters, may be put in the middle, to bear the great Cornice above the Arches; which Half-Columns, or Pilaſters, muſt be as large as their height requires, according to their ſeveral Orders, as it will appear in the enſuing Chapters and Deſigns. For underſtanding of theſe (that I may not repeat the ſame thing over and over) it muſt be obſerv'd, that in dividing and meaſuring the ſaid Orders, I did not think fit to make uſe of any determinate meaſure peculiar to any particular City, as a *fathom*, *foot*, *ſpan*, or the like, knowing that meaſures are as various as the Cities and Countries themſelves: but in imitation of *Vitruvius*, who divides the *Dorick* Order with a meaſure taken from the diameter of the Column, common to all (and by him called a *Module*) my meaſure in all the Orders ſhall be the diameter of the Column taken at the baſe, and divided into 60 parts, or minutes; except in the *Dorick*, in which the *module* is to be the half diameter of the Column, and is divided into 30 parts, becauſe it ſo falls more commodious in the diviſions of that Order. Therefore every one may divide the *module* into as many, or as few parts as may be thought moſt convenient, according to the bigneſs, or ſmallneſs of a

Building; and uſe the proportions and *profils* which I have here deſign'd for each Order.

CHAP. XIV.

Of the TUSCAN *Order.*

*THE *Tuſcan* Order, according to what *Vitruvius* writes of it, and what it is in effect, is the plaineſt and moſt ſimple of all the Orders of Architecture; becauſe it retains more of the ancient ſimplicity of the firſt Architects, who had not yet invented thoſe Ornaments that render the other Orders ſo pleaſant and ſo worthy of conſideration. This Order draws its original from *Tuſcany*, a Country very remarkable in *Italy*, where it ſtill preſerves its name.

THE Column with its *Baſe* and *Capitel*, ought to be in length ſeven *Modules*, and the top diminiſh'd by a fourth part of its bigneſs. If one is to make a row of Columns of this Order only, the *Inter-columns* may be kept very large, becauſe the Architraves are commonly made of Timber; and for that reaſon, this Order will be very convenient for a Country-building, for the going in and out of Carts, and other Country conveniencies, beſides that the charge will be leſs conſiderable.

A. *Architrave of Timber.*

B. *The ends of the Traves, or Joyſts which make the Corona.*

† BUT if one would make Gates, or Galleries with Arches, then the meaſures, which I have mark'd in the deſign, muſt be ſtrictly obſerv'd, wherein the Stones are ſo diſpos'd and join'd together, as I think they ought to be, when the whole work is to be made of Stone. The ſame obſervation I have made for the four following orders; and this way of diſpoſing and faſtening the Stones, I have taken from many ancient Arches, as will appear in my book of *Arches*, wherein I have uſed the utmoſt care and diligence.

** THE *Pedeſtals* to be made under the Columns of this Order, muſt have a module in height, and be made plain. The *Baſis* is to be in height the half diameter of the Column; and this height is to be divided into two equal parts, whereof one is given to the *Orlo* or *Plinth*, which muſt be made round, *or ſquare according to ſome.* The other is divided into four parts; one for the *Liſtella*, or *Cincture*, which ſometimes may be made a little leſs. In this Order only, it makes a part of the *Baſis*, for in all the others, it is join'd with the *ſhaft* of the Column. The other three parts are for the *Torus.* The projecture of this *baſis* is a ſixth part of a *module*, or of the diameter of the Column. The *Capitel* is likewiſe the height of half the diameter of the Column below, and is divided into two or three equal parts: one is given to the *Abacus*, which from its form, is commonly call'd *Dado*, or *Dye*; the other to the *Ovolo*, and the third is ſubdivided into ſeven parts. Of one is made the *Liſtella* under the *Ovolo*, and the other ſix remain for the *Collarino*, or the *Neck* of the Column. The *Aſtragal* is double the height of the *Liſtella* under the *Ovolo*, and its center is made upon the line which falls *plum* from the ſaid *Liſtella*, the projecture of which falls perpendicularly upon the *Liſtella* or *Cincture*, below the *Aſtragal*, which is as thick as the other. The projecture of the *Capitel* anſwers to the body of the Column below. Its *Architrave* is made of wood, ſquare every way, and its breadth is not to exceed the

* *Plate* IX. † *Plate* X. ** *Plate* XI.

the body of the column at the top. The *Traves*, or *Joysts*, which bear the *Eaves*, project a fourth part of the length of the Column. These are the measures of the *Tuscan* Order, as taught by *Vitruvius*.

A. *Abacus.*
B. *Ovolo*, or *Echinus.*
C. *Collarino*, or *Frise* of the *Capitel.*
D. *Astragal.*
E. *The Body of the Column above.*
F. *The Body of the Column below.*
G. *Listella*, or *Cincture*, or *Annulet.*
H. *Torus*, or *Tore*,
I. *Orlo*, or *Plinth.*
K. *Pedestal*, or *Stylobatum.*

The *Profils* mark'd L. are the *imposts* of the Arches.

* BUT if the *Architrave* is to be made of Stone, what was said before of the *Inter-columns* must be observ'd. There are to be seen some ancient Buildings, which may be said to have been built according to this Order, because they retain in part the same measures, as in the *Arena* of *Verona*, and the *Arena* and Theatre of *Pola* and many others, of which I have drawn the *Profils* of the *Basis*, *Capitels*, *Architraves*, *Frises*, and *Cornices*, which are in the last Plate of this Chapter, as those of the *Imposts* of the Vaults and Arches; of all which I shall put the designs into my Book of *Antiquities.*

A. *Cimasium*, or *Cima recta.*
B. *Corona.*
C. *Cima recta.*
D. *Cavetto.*
E. *Frize.*
F. *Architrave.*
G. *Cimasium.*
H. *Abacus.* } *of the Capitel.*
I. *Cima recta.*
K. *Collarino*, or *Hypotrachilum*, or *Frize* of the Capitel.
L. *Astragal.*
M. *Body of the Column towards the Capitel.*
N. *Body of the Column, towards the Basis.*
O. *Annulet*, *Listella*, or *Cincture.*
P. *Torus*, or *Tore, in the form of a Cima reversa*, } *of the Basis.*
Q. *Orlo*, or *Plinth*,

On the right hand of the profil'd *Architrave*, mark'd F, I have given the *Profil* of another more curiously done.

* *Plate* XII.

CHAP.

CHAP. XV.

Of the DORICK *Order.*

*Palladio is mistaken; for the Colonies that went into *Asia* were *Athenians*, and afterwards call'd *Ionians*, from *Ion* their General. They imitated the Temples which they saw among the *Dorians*, and call'd them *Dorick*.

THE *Dorick** Order was invented by the *Dorians**, and named from them; being a *Grecian* People, which dwelt in *Asia*. If these Columns are made alone without Pilasters, they ought to be seven and a half, or eight diameters high. The *Intercolumns* are to be little less than three diameters of the Columns: and this manner of spacing the Columns, is (by *Vitruvius*) call'd *Diastylos*.

† BUT if they are join'd to Pilasters, they must be, together with the *Basis* and *Capitel*, seventeen *modules* and one third high: that is, eight diameters and 35 parts: for it must be observ'd, that (as I have said before in the 13th Chapter) the *module* in this Order, is the half of the diameter of the Column, divided into thirty parts; tho' in all the other Orders, it is the whole diameter divided into 60 parts.

** AMONG the Ancients there was no *Pedestal* to this Order, tho' the modern Architects have adapted one to it. Therefore if one has a mind to join a *Pedestal*, the *Dado*, or *Dye* of it, must be a perfect square, and from its measure those of its Ornaments shall be taken: in order to this, the *Dye* is to be divided into three equal parts; the *basis*, with its *socket* or *plinth*, shall take two of them, and the *Cimasium* one; to which the *Orlo*, or *plinth* of the *basis* of the Column must be join'd. This kind of *Pedestal* may be seen in the *Corinthian* Order, as at *Verona* in the Arch call'd the Arch *de Lioni*. I have set down here several manners of *Profils*, which may be fitted to the *Pedestals* of this Order, which are all very agreeable, taken from ancient pieces, and very carefully measur'd. This Order has no proper *basis*: wherefore in many Buildings, its Columns are without a *basis*, as in the Theatre of *Marcellus* in *Rome*, in the Temple *de la Pieta* near the said Theatre; in the Theatre of *Vicenza*, and in divers other places. But sometimes the *Attick basis* is join'd to it, which is a great ornament to the Order, the proportion whereof is as follows. The height is the half diameter of the Column, and is divided into three equal parts: one is for the *Zocco* or *plinth*: The other two are subdivided into four parts, of one is made the *Torus superior*: the three remaining are again subdivided into two, one for the *Torus inferior*, and the other for the *Scotia* or *Cavetto*, with its *Annulets*, or *Listellas*; which have also their peculiar measures: for in dividing the whole into six parts, the two *Annulets*, or *Listellas* take each of them one, and the four remaining are for the *Scotia*. The whole projecture of the *basis* must be the sixth part of the diameter of the Column; the *Cincture* is as broad as half of the *Torus superior*: if it be divided from the *basis*, its *projecture* must be the third part of the whole *projecture* of the *basis*. But if the *basis* and a part of the Column must be of a piece, the *Cincture* must be smaller; as it may be seen in the third design of this Order, where I have also drawn two manners of *Imposts* for Arches.

A. *The Body of the Column.*

B. *Annulet*, or *Cincture*, or *Listella.*

C. *Upper*

* *Plate* XIII. † *Plate* XIV. ** *Plate* XV.

C. *Upper Torus.*
D. *Cavetto*, or *Scotia with its Annulets*, or *Liſtellas.*
E. *The lower Torus.*
F. *Zocco*, or *Plinth.*
G. *Cimaſium*,
H. *Dado*, or *Dye*, or *Square*, } *of the Pedeſtal.*
I. *Baſis*,
K. *Impoſts of Arches.*

* THE *Capitel* likewiſe ought to have in height the half diameter of the Column, which being divided into three principal parts, the firſt above is ſubdivided into five, three are for the *Abacus*, and the other two for the *Cimaſium*; which being again ſubdivided into three, the *Liſtella* takes one, and the *Cima recta* the other two. The ſecond principal part is divided into three, one of which is given to the three *Annulets*, or *Liſtellas*, that are equal; the other two are for the *Ovolo*, whoſe *projecture* is two thirds of its height. The third and laſt principal part, is for the *Frize* of the *Capitel*, call'd *Collarino*, or *Gorgerin*, or *Collar*. The whole *projecture* of the *Capitel* is the fifth part of the diameter of the Column. The *Aſtragal* is of the ſame height with the three *Filets*, or *Annulets*; and is equal in its *projecture* with the loweſt part of the Column. The *Annulet* is only half the height of the *Aſtragal*, and its *projecture* is *plum* with the Center of it.

THE *Architrave* is placed upon the *Capitel*, and is to be in height a *module*, or half the diameter of the *Column*. 'Tis divided into ſeven parts, one of which makes the *Tenia*, whoſe *projecture* is equal to its height. The whole is again divided into 6 parts, one whereof is given to the *Guttæ*, and the *Liſtel*, under the *Tenia*. The *Guttæ* are ſix in number, and the height of the *Liſtel* is a third of the ſaid *Guttæ*. The whole, from the *Tenia* downwards, is again divided into ſeven parts, of which the firſt *faſcia* takes three, and the ſecond four.

THE *Frize* is in height a *module* and a half. The breadth of the *Trigliph* is one *module*: and its *Capitel* takes up the ſixth part of a *module*. The *Trigliph* is divided into ſix parts, two whereof are given to the two *Chanels* in the middle, and one to the two half *Chanels* at the extremities: the other three make the ſpaces between the ſaid *Chanels*. The *Metopa*, that is to ſay, the ſpace between two *Triglihs*, ought to be perfectly ſquare. The height of the *Cornice* is a *module* and a ſixth, and is divided into five parts and a half: of which two are for the *Cavetto*, with its *Liſtel*, and the *Ovolo*. The *Cavetto* is leſs than the *Ovolo*, by as much as its *Liſtel*. The other three and a half are allow'd for the *Corona*, or *Cornice*, and to the two *Cimas*, the *reverſa* and the *recta*. The *Corona* ought to project two thirds of a *module*, and to have on its *plain* underneath ſix *Guttæ* in length, and three in breadth with their *Liſtels* over the *Trigliphs*, and ſome *Roſes, or other Ornaments*, over the *Metopa*. The *Guttæ* are round, and in the ſhape of little *Bells*: thoſe under the *Corona* muſt anſwer to thoſe under the *Tenia*. The *Cimaſium* ought to be an eighth part larger than the *Corona*, and is divided into eight parts, two whereof are given to the *Liſtel*, and the other ſix to the *Cimaiſe*, whoſe *projecture* is ſeven parts and a half. So that, at this rate, the *Architrave*, the *Frize* and *Cornice*, riſe to the height of the fourth part of the *Column*: and theſe are the proportions of the *Cornice* according to *Vitruvius*, from whom I have a little receded, by altering ſome Members of it, and making the whole ſomewhat larger.

* *Plate* XVI.

A. *Cima recta.*
B. *Cima reverſa.*
C. *Corona.*
D. *Ovolo.*
E. *Cavetto.*
F. *The Capitel of the Triglipb.*
G. *Triglipb.*
H. *Metopa.*
I. *Tenia.*
K. *Guttæ.*
L. *Firſt Faſcia.*
M. *Second Faſcia.*
N. *Cimaſium.*
O. *Abacus.*
P. *Ovolo.*
Q. *Annulets,* or *Liſtellas.*
R. *Collar,* or *Frize of the Capitel.*
S. *Aſtragal.*
T. *Liſtella,* or *Cincture.*
V. *Body of the Column.*
X. *The Plan of the Capitel, and the Module divided into thirty Minutes, or parts.*
Y. *Soffita, or the underneath of the Corona.*

CHAP. XVI.

Of the IONICK *Order.*

THE * *Ionick* Order had its Original in *Ionia*, a Province of *Aſia*; and we read that the famous Temple of *Diana* at *Epheſus* was built of that Order. The Column with its *Capitel* and *Baſe*, is nine *modules* high: and by a *module* is underſtood, as we have ſaid before, the diameter of the Column below. The *Architrave*, *Frize*, or *Cornice*, have the fifth part of the height of the Column. When the Columns are ſingle, the *Inter-columns* are of two diameters and a fourth part, and this is the moſt beautiful and commodious manner of all *Inter-columns*, which *Vitruvius* calls *Euſtylos*.

† IN the *Arches*, the *pilaſters* are in breadth a third part of the ſpace between two of them; and the Arch ought to be in height the double of the ſaid ſpace.

** IF there is to be given a *pedeſtal* to the Column of the *Ionick* Order, as in any deſign of Arches, it muſt be made as high, as half the breadth of the opening of the Arch: and having divided it into 7 parts and a half, two of them ſhall make the *Baſe* and one the *Cimaſium*; the other four and a half remaining ſhall be for the *Dado*, or *Square* of the *Pedeſtal*.

THE *Baſe* of this Order is half a *module* high, and is divided into three parts: one is for the *Orlo*, or *Plinth*; whoſe *projecture* is the fourth part of its height, and conſequently the eighth part of a *module*: the two other parts of the *Baſe* are ſubdivided into ſeven; of three is made the *Torus*; the other four are divided again into two parts, one given to the *Scotia*, or *Cavetto* above, and the other to that below, which ought to have more *projecture* than the other. The *Aſtragal* muſt have the eighth part of the *Scotia*. The *Cincture* of the *Column*, is the third part of the *Torus* of the *Baſe*; but if the *baſe* be made a part of the Column, the ſaid *Cincture* may be made ſmaller, as I have already obſerv'd in the *Dorick* Order; and the *Cincture* has half of the *projecture* already mentioned. Theſe are the meaſures of the *Ionick baſe*, according to *Vitruvius*.

BUT becauſe the *Attick baſe* is put to this Order in many ancient Buildings, and that it ſeems to me more agreeable upon a *Pedeſtal*, I have drawn the *Attick baſe*

* *Plate* XVII. † *Plate* XVIII. ** *Plate* XIX.

baſe with a ſmall *Aſtragal* under the *Cincture*, not omitting, at the ſame time, to give the Deſign as *Vitruvius* teaches us.

THE Deſigns mark'd L. are two different *profils* to make the *Impoſts* of Arches; and upon each of them the meaſures are ſet down by numbers which ſignify the *minutes*, or parts of a *module*, as I have done in all other Deſigns. Theſe *Impoſts* are in height half as much again, as the thickneſs of the *pilaſter*, which ſupports the Arch.

A. *Part of the Body of the Column.*

B. *Aſtragal with its Liſtella*, or *Cincture, which are Members of the Column.*

C. *The upper Torus.*

D. *Cavetto*, or *Scotia.*

E. *The lower Torus.*

F. *The Plinth faſtened to the Cimaſium of the pedeſtal.*

G. *Cimaſium in two forms,*
H. *Dado*, or *Dye*, or *Square,* } *of the pedeſtal.*
I. *Baſe in two forms,*

K. *Orlo*, or *Plinth of the baſe.*

L. *Impoſts of the Arches.*

* IN order to make the *Capitel*, the foot of the Column muſt be divided into 18 parts, and 19 of ſuch parts will be the length and breadth of the *Abacus*, the half of which is given to the height of the *Capitel* with its *Volutas*, whereby it comes to be 9 parts and a half high. One and a half is for the *Abacus* with its *Cimaſium*; the other eight remain to the *Voluta*, which is made in the following manner. From the extremity of the *Cimaſium*, one of the nineteen parts being taken within, from the point where that nineteenth part ends, a line is let fall *plum*, which divides the *Voluta* by the middle, and is call'd the *Catheta*. Where the point falls upon this line, which ſeparates the four parts and a half above, with the three and a half below, there is made the Center of the *Eye* of the *Voluta*, whoſe diameter is one of the eight parts of its height; and from the ſaid point a line is drawn, which *interſecting* at right Angles the *Catheta*, divides the *Voluta* into four parts. Next in the *Eye* of this *Voluta* a ſquare is form'd, the bigneſs whereof is the half diameter of the ſaid *Eye:* and two diagonal lines being drawn in it, upon them are mark'd thirteen points (computing the Center of the *Eye*) which are as many Centers whereon the fixed foot of the Compaſs is to ſtand to make the *Voluta*; and as to the order which muſt be obſerv'd in them, it appears by the numbers mark'd in the Deſign. The *Aſtragal* of the Column is right againſt the *Eye* of the *Voluta*. The *Volutas* are as thick in the middle, as is the *projecture* of the *Ovolo*, which reaches beyond the *Abacus*, ſo much as does the *Eye* of the *Voluta*. The hollow, or *Chanel* of the *Voluta* is even with the body of the Column. The *Aſtragal* of the Column turns about under the *Voluta*, and is always viſible, as it appears by the *Plan:* for 'tis natural that ſo ſlender a thing as the *Voluta* is feign'd to be, ſhould give way to another ſtronger, as the *Aſtragal* is, from which it is always equally diſtant.

IN the Angles of *Collonades*, or rows of Columns, and *Porticos* of the *Ionick* Order, *Capitels* are made with their *Volutas*, not only in the front, but alſo on that part which, making the *Capitel* as uſual, would have been the *Flank*; whereupon they come to have the front on two ſides, and are called *Angular-Capitels*.

How

* *Plate* XX.

A. *Cima recta.*
B. *Cima reverſa.*
C. *Corona.*
D. *Ovolo.*
E. *Cavetto.*
F. *The Capitel of the Trigliph.*
G. *Trigliph.*
H. *Metopa.*
I. *Tenia.*
K. *Guttæ.*
L. *Firſt Faſcia.*
M. *Second Faſcia.*
N. *Cimaſium.*
O. *Abacus.*
P. *Ovolo.*
Q. *Annulets,* or *Liſtellas.*
R. *Collar,* or *Frize of the Capitel.*
S. *Aſtragal.*
T. *Liſtella,* or *Cincture.*
V. *Body of the Column.*
X. *The Plan of the Capitel, and the Module divided into thirty Minutes, or parts.*
Y. *Soffita, or the underneath of the Corona.*

CHAP. XVI.

Of the IONICK *Order.*

THE * *Ionick* Order had its Original in *Ionia,* a Province of *Aſia*; and we read that the famous Temple of *Diana* at *Epheſus* was built of that Order. The Column with its *Capitel* and *Baſe,* is nine *modules* high: and by a *module* is underſtood, as we have ſaid before, the diameter of the Column below. The *Architrave, Frize,* or *Cornice,* have the fifth part of the height of the Column. When the Columns are ſingle, the *Inter-columns* are of two diameters and a fourth part, and this is the moſt beautiful and commodious manner of all *Inter-columns,* which *Vitruvius* calls *Euſtylos.*

† IN the *Arches,* the *pilaſters* are in breadth a third part of the ſpace between two of them; and the Arch ought to be in height the double of the ſaid ſpace.

** IF there is to be given a *pedeſtal* to the Column of the *Ionick* Order, as in any deſign of Arches, it muſt be made as high, as half the breadth of the opening of the Arch: and having divided it into 7 parts and a half, two of them ſhall make the *Baſe* and one the *Cimaſium*; the other four and a half remaining ſhall be for the *Dado,* or *Square* of the *Pedeſtal.*

THE *Baſe* of this Order is half a *module* high, and is divided into three parts: one is for the *Orlo,* or *Plinth*; whoſe *projecture* is the fourth part of its height, and conſequently the eighth part of a *module:* the two other parts of the *Baſe* are ſubdivided into ſeven; of three is made the *Torus*; the other four are divided again into two parts, one given to the *Scotia,* or *Cavetto* above, and the other to that below, which ought to have more *projecture* than the other. The *Aſtragal* muſt have the eighth part of the *Scotia.* The *Cincture* of the *Column,* is the third part of the *Torus* of the *Baſe*; but if the *baſe* be made a part of the Column, the ſaid *Cincture* may be made ſmaller, as I have already obſerv'd in the *Dorick* Order; and the *Cincture* has half of the *projecture* already mentioned. Theſe are the meaſures of the *Ionick baſe,* according to *Vitruvius.*

BUT becauſe the *Attick baſe* is put to this Order in many ancient Buildings, and that it ſeems to me more agreeable upon a *Pedeſtal,* I have drawn the *Attick baſe*

* *Plate* XVII. † *Plate* XVIII. ** *Plate* XIX.

baſe with a ſmall *Aſtragal* under the *Cincture*, not omitting, at the ſame time, to give the Deſign as *Vitruvius* teaches us.

THE Deſigns mark'd L. are two different *profils* to make the *Impoſts* of Arches; and upon each of them the meaſures are ſet down by numbers which ſignify the *minutes*, or parts of a *module*, as I have done in all other Deſigns. Theſe *Impoſts* are in height half as much again, as the thickneſs of the *pilaſter*, which ſupports the Arch.

A. *Part of the Body of the Column.*

B. *Aſtragal with its Liſtella*, or *Cincture, which are Members of the Column.*

C. *The upper Torus.*

D. *Cavetto*, or *Scotia.*

E. *The lower Torus.*

F. *The Plinth faſtened to the Cimaſium of the pedeſtal.*

G. *Cimaſium in two forms,*
H. *Dado*, or *Dye*, or *Square,* } *of the pedeſtal.*
I. *Baſe in two forms,*

K. *Orlo*, or *Plinth of the baſe.*

L. *Impoſts of the Arches.*

* IN order to make the *Capitel*, the foot of the Column muſt be divided into 18 parts, and 19 of ſuch parts will be the length and breadth of the *Abacus*, the half of which is given to the height of the *Capitel* with its *Volutas*, whereby it comes to be 9 parts and a half high. One and a half is for the *Abacus* with its *Cimaſium*; the other eight remain to the *Voluta*, which is made in the following manner. From the extremity of the *Cimaſium*, one of the nineteen parts being taken within, from the point where that nineteenth part ends, a line is let fall *plum*, which divides the *Voluta* by the middle, and is call'd the *Catheta*. Where the point falls upon this line, which ſeparates the four parts and a half above, with the three and a half below, there is made the Center of the *Eye* of the *Voluta*, whoſe diameter is one of the eight parts of its height; and from the ſaid point a line is drawn, which *interſecting* at right Angles the *Catheta*, divides the *Voluta* into four parts. Next in the *Eye* of this *Voluta* a ſquare is form'd, the bigneſs whereof is the half diameter of the ſaid *Eye:* and two diagonal lines being drawn in it, upon them are mark'd thirteen points (computing the Center of the *Eye*) which are as many Centers whereon the fixed foot of the Compaſs is to ſtand to make the *Voluta*; and as to the order which muſt be obſerv'd in them, it appears by the numbers mark'd in the Deſign. The *Aſtragal* of the Column is right againſt the *Eye* of the *Voluta*. The *Volutas* are as thick in the middle, as is the *projecture* of the *Ovolo*, which reaches beyond the *Abacus*, ſo much as does the *Eye* of the *Voluta*. The hollow, or *Chanel* of the *Voluta* is even with the body of the Column. The *Aſtragal* of the Column turns about under the *Voluta*, and is always viſible, as it appears by the *Plan:* for 'tis natural that ſo ſlender a thing as the *Voluta* is feign'd to be, ſhould give way to another ſtronger, as the *Aſtragal* is, from which it is always equally diſtant.

IN the Angles of *Collonades*, or rows of Columns, and *Porticos* of the *Ionick* Order, *Capitels* are made with their *Volutas*, not only in the front, but alſo on that part which, making the *Capitel* as uſual, would have been the *Flank*; whereupon they come to have the front on two ſides, and are called *Angular-Capitels*.

How

* *Plate* XX.

How they are to be made I ſhall teach in my Book of *Temples*, *i. e.* the 4th Book.

A. *Abacus.*
B. *Chanel*, or *hollow of the Voluta.*
C. *Ovolo.*
D. *Aſtragal under the Echinus or Ovolo.*
E. *Cincture*, or *Annulet*, or *Liſtella.*
F. *Part of the Body of the Column.*
G. *A Line call'd Catheta.*

THE Plate XXI. repreſents the *Ionick* Baſe according to *Vitruvius*, together with the *Eye* of the *Voluta* upon a large Scale, marked S.

MEMBERS of the *Baſe* according to *Vitruvius.*

K. *Part of the Body of the Column.*
L. *Cincture*, or *Annulet.*
M. *Torus.*
N. *Firſt Scotia.*
O. *Aſtragal.*
P. *Second Scotia.*
Q. *Orlo*, or *Plinth.*
R. *Projecture of the Baſe.*

* THE *Architrave*, *Frize* and *Cornice* have, as I ſaid before, the fifth part of the height of the Column; and the whole is divided into 12 parts. The *Architrave* has four, the *Frize* three, and the *Cornice* five. The *Architrave* is ſubdivided into five parts; of one is made its *Cimaſium*, and the reſt is ſubdivided again into twelve: for the firſt *Faſcia* and its *Aſtragal* three, to the ſecond and its *Aſtragal* four, and to the third five.

THE *Cornice* is divided into $7\frac{1}{4}$ parts; two are given to the *Scotia*, or *Cavetto* and *Ovolo*; two to the *Modilions*, and the reſt to the *Corona* and *Cimaſium.* The whole *Cornice* projects as much as its height.

I HAVE drawn the *Front*, the *Flank*, and the *Plan* of the *Capitel*; and the *Architrave*, *Frize* and *Cornice*, with their proper Ornaments.

A. *Cimaſium*, or *Cima recta.*
B. *Cima reverſa.*
C. *Corona.*
D. *Cimaſium of the Modilions.*
E. *Modilions.*
F. *Ovolo.*
G. *Cavetto.*
H. *Frize.*
I. *Cimaſium of the Architrave.*
K. *Firſt Faſcia.*
L. *Second Faſcia.*
M. *Third Faſcia.*

Members of the *Capitel.*

N. *Abacus.*
O. *Channel*, or *hollow of the Voluta.*
P. *Ovolo*, or *Echinus.*
Q. *Aſtragal of the Column.*
R. *Part of the Body of the Column.*

* *Plate* XXII.

The *Plan* mark'd S, repreſents the *Soffite*, or the underneath of the *Corona* between each *Modilion*.

CHAP. XVII.

Of the CORINTHIAN *Order.*

* AT *Corinth*, a moſt famous City of *Peloponneſus*, now the *Morea*, was invented the Order from thence call'd *Corinthian*, and which is more genteel, rich, and beautiful, than any of thoſe I have yet diſcours'd upon. The Columns are like thoſe of the *Ionick* Order; and, with the *Baſe* and *Capitel*, they are nine *Modules* and a half high. If they are *fluted* they muſt have 24 *Flutes* or *Chanels*, which are to be half as deep as they are broad. The *Plans*, or *Spaces*, between one *Flute* and the other, muſt be a third part of the breadth of the ſaid *Flutes*. The *Architrave*, *Frize*, and *Cornice*, are a fifth part of the height of the Columns. In the deſign of a *Colonnade*, or ſingle Columns, the *Inter-columns* are two diameters, as in the *Portico* of St. *Maria Rotunda* at *Rome*; and this manner of *diſtancing* the Column is, by *Vitruvius*, call'd *Syſtylos*.

† IN that of *Arches*, the *Pilaſters* have two fifths of the breadth of the *Arch*, which breadth or void is in height two ſquares and a half, the thickneſs of the ſaid *Arch* being comprehended.

** THE *Pedeſtal* under the *Corinthian* Column, muſt have in height the fourth part of the length of the Column, and being divided into eight parts, one is given to the *Cimaſium*, two to the *Baſe*, and five to the *Dye* or *Square*. The *Baſe* muſt be divided into three parts, two for the *Zocco* or *Plinth*; and one to the *Moulding*.

THE common *Baſe* of this Column is the *Attick*; but yet it differs from that which is put to the *Dorick* Order; for in this the *projecture* is the fifth part of the diameter of the Column; *whereas in the Dorick it is the ſixth part.* It may alſo vary in ſome other parts, as it appears by the Deſign, where I have *profil'd* the *Impoſts* of the Arches, the height of which is double of the *Membretto*, or *Half-pilaſter* which bears up the *Arch*.

A. *Part of the Column.*
B. *Cincture*, or *Aſtragal of the Column.*
C. *Upper Torus.*
D. *Cavetto*, or *Scotia*, *with its Aſtragals.*
E. *Lower Torus.*
F. *Orlo*, or *Plinth of the Baſe*, *join'd to the Cimaſium of the Pedeſtal.*
G. *Cimaſium*,
H. *Dado*, or *Dye*, or *Square*,
I. *Moulding of the Baſe*,
K. *Orlo*, or *Plinth of the Baſe*,
} *of the Pedeſtal.*
L. *The Impoſt of the Arch.*

†† THE height of the *Corinthian Capitel* takes a diameter of the Column below, and a ſixth part more, which is allow'd to the *Abacus*. The reſt is divided into three equal parts. One is for the lowermoſt row of *Leaves*, the other for the middle row; but the third is ſubdivided into two, and of that part next to

* *Plate* XXIII. † *Plate* XXIV. ** *Plate* XXV. †† *Plate* XXVI.

the *Abacus* are made the *Cauliculi*, or *Stalks*, with their *Leaves*, which ſeem to be ſupported by them; and therefore the *Stalk* from whence they grow, muſt be made thick, but they in their *foldings* muſt diminiſh by degrees; following in that the Example of the Plants, which are thicker at the bottom than at the extremities of their Branches*. The *Bell* which is the inward body of the *Capitel* under the *Leaves*, ought to be *plum* with the bottom of the *Flutes* of the Column. To give the *Abacus* a convenient *projecture*, a perfect ſquare muſt be made, each ſide whereof is to be a *module* and a half, and the diagonal lines being drawn from one angle of it to another, the point of their interſection in the middle, is the center of the ſaid ſquare; on which the fix'd foot of the Compaſs being plac'd, towards each Angle of the ſquare a *module* muſt be mark'd, where lines muſt be drawn interſecting at right Angles with the ſaid diagonal Lines, that they may touch the ſides of the Square. Theſe are the bounds of the *projecture* of the *Abacus*, the length of the ſaid Lines, giving the breadth of its *Horns*. The *Curvilineal-ſide*, or diminution of the *Abacus* is made, by drawing a circular line from one horn to the other, which will be the *Baſe* of an *equilateral* triangle. Then a ſtrait line is drawn from the extremities of the ſaid *horns* to the extremities of the *Aſtragal* of the Column, which Line the *Tongues* of the *Leaves* muſt ſeem to touch, or rather paſs a little outwards, and ſo they have a full *projecture*. The *Roſe* is to be as broad as the fourth part of the diameter of the Column at the foot. The *Architrave*, *Frize* and *Cornice* (as I have ſaid before) are to be a fifth part of the height of the Column, and the whole is to be divided into 12 parts, as in the *Ionick* Column: with this difference however, that the *Cornice* of the *Corinthian* is divided into eight parts and a half, one of which is given to the *Cima reverſa*, and another to the *Denticuli*, the third to the *Ovolo*, the fourth and fifth to the *Modilions*, and the other three and a half to the *Corona* and *Cima*. The *Cornice* has as much *projecture* as it has height. The *Pannels* of the *Roſes*, between the *Modilions*, muſt be ſquare; and the *Modilions* as big as half the *Plan* of the ſaid *Roſes*. The Members of this Order have not been mark'd with Letters, as the foregoing, becauſe by them theſe may be eaſily underſtood.

* The Stock or Stem taken from Colewort, is a plain miſtake: for all ſuch Leaves at their Stalk are ſtronger, but not broader than in the midſt; as thoſe of the *Cauliculi*, in the *Corinthian* Capitel: It is not a Stalk only with the Leaves ſtript off, but a Tendril; and he means from the ſide of the Square of the Abaco, which is all one, as from the Roſes ſtreight Leaves, and not as *Vignola* has made them. But the Roſes of *Palladio* have too little Projection, as the other have too much. Between them both, *Scamozzi*'s is the beſt, which he makes a Circle of one diameter and $\frac{3}{4}$, and the Lines are to touch the Aſtragal. This Rule I have uſed myſelf, and it does well. *Viola Zanini* follows *Palladio* directly.

CHAP. XVIII.

Of the COMPOSITE *Order.*

*THE *Compoſite* Order (which is alſo named *Roman*, as being an Invention of the ancient *Romans*) is ſo call'd, becauſe it partakes of all the aforeſaid Orders; and the moſt regular and beautiful is that which is compounded of the *Ionick* and *Corinthian*. It is more ſlender than the *Corinthian*, and may be made like it in all its parts, except in the *Capitel*.

THE Columns ought to be 10 *Modules* high. In the Deſigns of Columns, or ſingle *Collonades*, the *Inter columns* are but of one diameter and a half: and in this manner is call'd by *Vitruvius*, *Picnoſtylos*.

† IN thoſe of *Arches*, the *pilaſters* are to be half of the breadth, or void of the *Arch*, which is to be under the *Keyſtone* two *ſquares* and a half high; that is to ſay, two diameters and a half of the *Arch*.

* *Plate* XXVII. † *Plate* XXVIII.

* AND becauſe (as I have ſaid) this Order is more ſlender than the *Corinthian*; its *Pedeſtal* muſt be the third part of the height of the Column; which being divided into eight parts and a half, of one part is made the *Cimaſium* of the ſaid *Baſe*, five and a half for the *Dado*; the two others for the *Baſe*, which being ſubdivided into three, two will make the *Zocco*, or *Plinth*; and the third for the *Torus* and *Cima*.

THE *Baſe* of the Column may be made *Attick*, as in the *Corinthian*; and it may be alſo compounded of the *Attick* and the *Ionick*, as appears by the Deſign.

THE *Impoſts* of the Arches are profil'd by the ſide of the *Pedeſtal*; and its height is equal to the diameter of the *Membretto*, or *Half-pilaſter*.

A. *Impoſt of the Arch.*

† THE *Capitel* of the *Compoſite* Order has the ſame meaſures as that of the *Corinthian*; but it differs from it in the *Voluta*, *Ovolo*, and *Fuſarölo*, or *Fuſe*, which are Members of the *Ionick Capitel*. The way of making it is thus. From the *Abacus* downward, the *Capitel* is divided into three parts, as in the *Corinthian*. The firſt is given to the firſt row of *Leaves*, the ſecond and the third to the *Voluta*, which is made in the ſame manner, and with the ſame points as that of the *Ionick*. It takes up ſo much of the *Abacus*, that it ſeems to go out of the *Ovolo*, at the foot of the *Flower* which is put in the middle of the circular ſide of the *Abacus*; and it is as thick in the front, as the breadth of the *Horns* thereof, and a little more. The *Ovolo* is as big as three parts of five of the *Abacus*, and its lower part, that is its *Fuſe*, ought to be parallel with the *Eye* of the *Voluta*. It has in its *projecture* ¼ of its height, and is with its *projecture*, perpendicular to the hollow of the *Abacus*, or a little more outwards. The *Fuſe* is a third part of the height of the *Ovolo*, and has in its *projecture* ſomething more than the half of its thickneſs. It turns about the *Capitel* under the *Voluta*, and is always ſeen. The *Liſtel*, which is under the *Fuſe*, and makes the edges of the *Bell* of the *Capitel*, is the half of the *Fuſe*. The body of the *Bell* ought to be *plum* with the bottom of the *Flutes* of the Column. I have ſeen one of this ſort at *Rome*, from which I have drawn all theſe meaſures, becauſe it appear'd to me very beautiful and well contriv'd.

THERE are *Capitels* to be ſeen made after another manner, and which may be call'd Compoſite; of which I propoſe to ſpeak, and to inſert the Deſigns of them in my Book of *Antiquities*. The *Architrave*, *Frize*, and *Cornice*, have the fifth part of the height of the Column; and it will be very eaſy to know their different diviſion, or diſtribution, by that which has been ſaid before in the other Orders, and by the Numbers I have plac'd in the Deſigns.

CHAP. XIX.

Of PEDESTALS.

HITHERTO I have diſcours'd, as much as to me ſeem'd neceſſary to be known, concerning ſimple Walls and their Ornaments; and in particular I have touch'd upon the *Pedeſtals*, which may be applied to every Order. But becauſe it appears that the Ancients have not had this regard to make the *Pedeſtals*

* *Plate* XXIX. † *Plate* XXX.

deſtals bigger for one Order than for another, altho' this part much adds to the beauty and ornament of the work, when it is made with diſcretion and due proportion to the other parts: to the end nevertheleſs, that the Architects may get a full knowledge of theſe, and make a right uſe of them upon occaſion, they muſt take notice that the Ancients made them ſometimes ſquare, that is to ſay as long as broad, as may be ſeen in the *Arch* call'd *di Lioni* at *Verona*; and theſe I have aſſign'd to the *Dorick* Order, becauſe it requires more ſolidity. Sometimes they took their meaſure in making of them from the diameter of the void of the *Arch*, as in the *Arch* of *Titus* at *Santa Maria Nova* at *Rome*, and that of *Trajan* over the Gate of *Ancona*, where the Pedeſtal is half the height of the opening of the *Arch*; and of this kind of Pedeſtals I have put to the *Ionick* Order. Sometimes they took their meaſure from the height of the Column, as is ſeen at *Suſa*, a City ſituated at the foot of the Mountains which divide *Italy* from *France*, in an *Arch* erected to the honour of *Auguſtus Cæſar*: and in the *Arch* of *Pola*, a City of *Dalmatia*, and alſo in the Amphitheatre of *Rome* in the *Ionick* and *Corinthian* Orders: in which Buildings the Pedeſtal is the fourth part of the height of the Column, as I have made it in the *Corinthian* Order. In *Verona*, in the *Arch* call'd *di Caſtel vecchio*, which is very beautiful, the Pedeſtal is a third of the height of the Column, as I have order'd it in the *Compoſite* Order. All theſe forms of Pedeſtals are moſt beautiful, and have moſt elegant proportions with the other parts to which they belong. And when *Vitruvius* diſcourſing of Theatres, makes mention of the *Poggio*, one muſt know, that by that word he means the Pedeſtal to which he gives the third part of the Columns with which he adorns the Scenes. But of Pedeſtals which exceed a third part of the Column, we have an Example at *Rome* in the *Arch* of *Conſtantine*, where the Pedeſtals have one of two parts and a half of the height of the Column. And almoſt in all the ancient Pedeſtals 'tis to be obſerv'd, that the Baſes have the double of the *Cimaſium*, as I ſhall demonſtrate in my Book of *Arches*.

CHAP. XX.

Of the Errors and Abuſes introduced into Architecture.

HAVING ſet down all thoſe Ornaments of *Architecture* which conſiſt in the right uſe of the five Orders, and having ſhewn how they ought to be made by drawing the *Profils* of each of their parts, according as I found that the Ancients did practiſe; it ſeems to me not unfit here, to inform the Reader of many Abuſes, which having been formerly introduc'd by *Barbarians*, are obſerv'd even to this day; and this I do, to the end that the Studious in this Art may avoid them in their own Works, and be able to take notice of them in thoſe of others. I ſay then, that *Architecture* (as all the other Arts) being grounded upon Rules taken from the imitation of Nature, admits of nothing that is contrary, or foreign to that Order which Nature has preſcrib'd to all things. Wherefore we ſee that the ancient Architects, who begun to alter their Timber-Buildings, and to make them with Stones, kept their Columns leſs at the top than at the foot, taking example from Trees, all which are leſs at the top than in the Trunk, and towards the Roots: likewiſe, becauſe it is very natural that thoſe things upon which any great weight is laid, ſhould be preſs'd,

under

under the Column they did put a *Baſe*, which by its *Torus*, *Cavetto*, and *Aſtragal*, ſeems to repreſent a ſwelling caus'd by the burden over it. So they brought in the *Cornices*, *Trigliphs*, *Modilions*, and Dentils, to repreſent the heads of the Joyſts, which in the Cieling are plac'd to bear up the Roof. The ſame may be obſerv'd in all other parts, if one is curious to examine them. And this being ſo, what ſhall we ſay of that form of Building, which is ſo contrary to what Nature has taught us, that it deviates from that Simplicity which is viſible in things by her produc'd, and departs from all that is good, or true, or agreeable in the way of Building: for which reaſon, inſtead of Columns, or Pilaſters, which are contriv'd to bear a great weight, one ought not to place thoſe Modern Ornaments call'd *Cartooſhes*, which are certain *Scroles* that are but an eye-ſore to the Artiſts, and give others only a confuſed Idea of *Architecture*, without any pleaſure or ſatisfaction; nor indeed do they produce any other effect than to increaſe the Expences of the Builder. For the ſame reaſon theſe *Cartooſhes* ought never to come out of the *Cornice*; for it is requiſite that all the Members of it ſhould be made to ſome end, and to ſhew what it would be, if all the work had been fram'd of Timber. Beſides that, as it is requiſite to uphold a great weight with ſomething ſolid, and fit to ſupport it: ſo ſuch non-ſenſical things, as *Cartooſhes*, are altogether ſuperfluous, becauſe it is impoſſible that the Joyſts, or any other Timber whatſoever, could really perform what theſe repreſent; and ſince they are feign'd to be ſoft and weak, I know not by what Rule they can be put under any thing heavy and hard. But of all Abuſes, in my opinion the moſt intolerable is, the making certain frontons of Doors, or Windows, or Galleries, divided in the middle: becauſe theſe frontons were contriv'd at firſt to defend thoſe parts from Rain, neceſſity having taught our firſt Architects to give them the form of a Roof; ſo that I know nothing more contrary to natural Reaſon, than to divide and open that part which the Ancients did make whole, in order to defend the Inhabitants of the Houſe, and thoſe that enter into the ſame, from Rain, Snow, Hail, and other injuries of the Air: and altho' variety and novelty ſhould pleaſe all, yet we are not to go againſt the precepts of Art, and that which Reaſon demonſtrates; whence we ſee that the Ancients in their ſeveral Contrivances have never departed from the general and neceſſary Rules of Art or Nature, as may be ſeen in my Book of *Antiquities*. As for the *projecture* of the *Cornice*, and other Ornaments, 'tis not a ſmall abuſe to make it too great; becauſe when theſe Projectures exceed their juſt meaſure, eſpecially if the Building is in a cloſe place, it appears the narrower and more uncomely, as well as always frightning thoſe which ſtand underneath, as if it would fall upon them. One ought alſo carefully to avoid making the *Cornice* diſproportionable to the Columns; for 'tis certain that putting great *Cornices* upon little Columns, or upon great Columns little *Cornices*, muſt needs make a very ſad Aſpect. Again, thoſe ſorts of Columns, which are feign'd to be made of ſeveral pieces, and jointed together by the means of certain *Rings*, or *Annulets*, in the form of a Ruſtick, ought alſo to be no leſs carefully avoided; becauſe how much the more entire and ſtrong the Columns appear, ſo much the more they perform the deſign for which they are plac'd, which is to render the Work above more ſecure and firm. Many other the like abuſes might be reckon'd up, as of ſome Members which in the *Cornices* are made diſproportionable to the reſt, as by what I have ſhewn before, and by what is now ſaid, may be eaſily known. It remains now to come to the diſpoſing of the particular and principal parts of a Building.

CHAP. XXI.

Of Galleries, Entries, Halls, Anti-Chambers, Chambers, and of their ſeveral proportions.

GALLERIES are commonly made in the fore or back Front of a Houſe; or if only one is intended, it muſt be in the middle: if two, they are to be plac'd in the Wings. They ſerve for many uſes, as walking eating and other diverſions. They are made larger or leſſer, according to the greatneſs and conveniency of the Building; but ordinarily they ought not to have leſs than 10, nor more than 20 Foot in breadth. Beſides this, every well-order'd Houſe ought to have in the middle, or chief part, ſome place with which all the other parts of the Houſe may have an eaſy Communication. Thoſe places in the Ground-Story are vulgarly call'd *Entries*, *Lobbies*, or *Paſſages*; and above they are *Halls*. They ſerve in a Houſe as publick places. The Entries ſerve for thoſe who attend, or wait on the Maſter to ſalute him, or to do any buſineſs with him. Such places are the parts of the Houſe, (beſides the Galleries) that firſt preſent themſelves to thoſe that are about to enter the ſame. The Halls ſerve for all ſorts of ceremonial Feaſts, as Weddings, Banquets, Comedies and ſuch other Paſtimes. For this reaſon, therefore, theſe places ought to be made much more ſpacious than others, to the end that many Perſons may commodiouſly be entertain'd therein, and eaſily ſee what's a doing. I do obſerve always to allow for the length of a Hall, no more than the double of its breadth; but the nearer they come to a Square, the more beautiful and convenient they will be.

THE Anti-Chambers and Chambers ought to be ſo divided and diſpoſed, that they may fall on each ſide of the Entry and of the Hall, taking care that thoſe on the right hand may exactly anſwer to thoſe on the left; that ſo not only one ſide of the Building be in all things equal to the other, but that the Walls likewiſe may bear equally the Burden of the Roof: becauſe if the Chambers were on one ſide larger than on the other, this (conſidering the cloſeneſs of the Walls) would bear more of the weight; and the other, being proportionably weaker, would occaſion many inconveniencies, and in proceſs of time the ruin of the whole Fabrick.

THE handſomeſt and moſt elegant proportion for Chambers, and which have the beſt effect, may be taken ſeven different ways: for they may be made round (which form is very little in uſe) or ſquare, or they have in length the Diagonal of their ſquare, or a third more than the ſquare, or a ſquare and a half, or a ſquare and two thirds, or two ſquares full.

CHAP. XXII.

Of FLOORS *and* CIELINGS.

AFTER having ſpoken of the forms of Galleries, Halls, Anti-Chambers, and Chambers, 'tis neceſſary to ſay ſomething of Floors and flat Cielings. The ſuperficies of the Floors may be made out of Mortar, as uſual in *Venice*, or of ſquare Tyles, or of hard Stone. Thoſe of Mortar or Plaſter are very good, when made out of beaten *Cement* and fine Sand, or with River-Pebbles, or *Padoua* Stone-lime; all well mixt together. Such Floors muſt be made during the Spring, or Summer, that they may dry the better. Brick, or Square Tyle-Pavements are more agreeable to the Eye, becauſe of the many forms into which they may be made, and of the Colours they are capable to receive by the divers colours of the Earth they are made with. The Floors of Bed-chambers, or other much frequented Rooms, are ſeldom made of Marble, or any hard Stone, becauſe in the Winter they would be too cold; but in Galleries, or other publick places, they will agree well enough.

CARE muſt be taken, that all the Rooms which are of the ſame Story, may have their Floor or Pavement equal, and in ſuch a manner that the very Threſholds of the Doors may not be higher than the reſt. And if any little Room or Cloſet ſhould happen to be lower than the reſt, what is wanting muſt be ſupplied by a *Mezanine*, or falſe Floor-Cieling.

THE Cielings are alſo made divers ways, for ſome delight to have handſome and well wrought Joyſts; in which caſe it is neceſſary to obſerve, that the Joyſts be diſtant one from another the thickneſs of a Joyſt and a half: becauſe ſuch a diſtribution will make the Cieling very handſome, and between the ends of every Joyſt, there will be ſufficient Wall to bear the upper Story: whereas if they ſhould ſtand wider one from the other, it would look ill, and if cloſer, 'twould be like a dividing of the upper Wall from the lower; and the Joyſts rotting at the end, or being conſum'd by Fire, the Wall above muſt fall of courſe. Others will have Compartements of *Stuc (which is a ſort of hard Plaſter)* or of Planks, that they may enrich them with Pictures, beautifying them according to their various Humours and Fancies; and therefore in this point there can be given no determinate Rules.

CHAP. XXIII.

Of the Height of CHAMBERS.

CHAMBERS are made either arch'd, or with a flat Cieling. If the laſt way, the height from the Pavement or Floor to the Joyſts above, ought to be equal to their breadth: and the Chambers of the ſecond Story muſt be a ſixth part leſs than them in height. As to the Rooms which are arch'd (and which are commonly made ſo in the firſt Story, not only becauſe they are more beautiful, but alſo leſs ſubject to Fire) their height in a ſquare Room is a third more than their breadth: but in thoſe whoſe length exceeds their breadth, a height

height proportional to the length and breadth together may be eaſily found, by joining both the two Lines of the length and breadth into one Line, which being divided by the middle, the one half will give exactly the height of the *Arch*. As for Example, let BC be the place where an arch'd Room is to be made; joining the breadth AC with the length AB, and the line EB being divided into two equal parts in the point F, 'tis plain that FB is the height requir'd. Or if the Room to be arch'd is 12 Foot long, by 6 wide, theſe two numbers join'd together, give 18, the half of which is 9, and therefore the height of ſuch a Room muſt be 9 Foot.

ANOTHER proportional height to the length and breadth of a Room, may be found in this manner. BC being the Room to be arch'd, the length and breadth ſhall be join'd upon one Line as BF; on the middle of which having mark'd the point C, it will be the Center of the Semi-circle BGF, and in prolonging the Line AC till it touches the Circumference at the point G, the Line AG will be the height of the Arch BC. That ſame proportion is to be found by numbers in this manner: knowing how many Foot are contain'd in the length and breadth of the Room, we muſt find a number which has the ſame relation of proportion with the breadth, as the length has with it, by multiplying the leſs extreme by the greateſt; becauſe the *ſquare Root* of the product of that multiplication ſhall be the height demanded. As for Example, if the place to be arch'd is 9 Foot long and 4 Foot wide, the height of the Arch ſhall be 6 Foot, for the proportion from 9 to 6, is the ſame as from 6 to 4, *viz.* the *ſeſquilateral* proportion, but it muſt be obſerv'd that this height is not always to be found by numbers.

THERE is another height to be found, which tho' leſs, has notwithſtanding a very good proportion with the length and breadth of the Room. Having drawn the Lines AB, AC, CD, and DB, which repreſent the breadth and length of the Room, and the height taken according to the firſt method, which is CE being join'd to AC; draw the Line EDF, then prolonging the Line AB till it touches the Line EDF, in the Point F, the Line BF ſhall be the height of the Arch. But to find it by numbers is thus: Having taken the length and breadth of the Room according to the firſt method, which height is in the foregoing Example 9 Foot; put together the length, the breadth and the height, as this Figure repreſents, then multiply the 9 by 12, and the 6, and the product of the 12 being ſet under the 12, and that of the 6 under the 6; multiply 6 by 12, lay the product under the 9, which will make 72, and having got a number which being multiplied by 9, produces 72, as 8 would do in this Example; I ſay that the Arch is to be 8 Foot high.

12	9	6
108,	72,	54
	8	

Theſe different heights have ſuch a relation amongſt themſelves, that the firſt is larger than the ſecond, in the ſame proportion with which the ſecond is larger than the third. We may then make uſe of each of theſe heights, according as they will allow more conveniency in contriving, that the ſeveral Rooms of different dimenſions may have their *Arches* equally high, and yet with a juſt proportion. By theſe means the Rooms will have an agreeable Aſpect, and the Floor above will be upon a level, and very commodious. There are other proportions for the height of *Arches*, which have no determinate Rules: and ſo they muſt be left to the Architect to make uſe of them, according to his Judgment, and as he ſees neceſſary.

CHAP. XXIV.

Of the divers ſorts of ARCHES.

THERE are ſix different forms of *Arches*, viz. *croſs'd*, *faſciated*, *flat*, (thoſe are call'd ſo, which are but a Section of a Circle) *round*, *grinded*, and *ſhell-like*, all which have in height one third of the breadth of the Room. The two laſt are but of a modern Invention, but the other four were uſed by the Ancients. Round *Arches* are fit for ſquare Rooms: and the way to make them, is to leave in the four Angles ſome ſort of *Mutules*, *Cartooſhes*, *Conſoles*, *or any other ſhouldering-pieces*, to bear the *Arch*, which in the middle happens to be flat, but more round, as it comes nearer the Angles. Such a one is at *Rome* in the Bath of *Titus*, which was almoſt ruined when I ſaw it. I have drawn here* the form of each ſort of *Arching*, appropriated to the figure of the Rooms that are fit for the ſame.

CHAP. XXV.

Of the Meaſures of DOORS *and* WINDOWS.

IT is not poſſible to give any certain and determinate Rule for the height and breadth of the principal Gates, or Doors of Buildings, nor of the Doors and Windows of Rooms; becauſe, that, for to make the principal Gates, the Architect muſt accommodate them to the extent of the Edifice, the quality of the Maſter, and the uſe that is to be made of them, by what goes in, or out of the ſame. The following method ſeems to me to ſucceed well enough: that is, to divide all the height from the Ground to the firſt Cieling above into three parts and a half (as *Vitruvius* mentions in his 4th Book, Chap. 6.) and to give two of thoſe parts to the height of the opening, and one to its breadth, wanting a 12th of the height. The Ancients were wont to make their Doors narrower above than below, as may be ſeen in a Temple at *Tivoli*; and *Vitruvius* teaches the ſame, perhaps for procuring a greater ſolidity. The great Doors ought to be placed in ſuch a manner, that there may be a free coming to them from all parts of the Houſe. Doors within the Houſe ought not to exceed three Foot in breadth, nor ſix and a half in height: nor can they be leſs than five Foot high by two wide. As for the openings of the Windows, one muſt conſider how to place them ſo that the Rooms ſhould not receive too much nor too little Light; and that the Windows themſelves be not too cloſe, nor at too great diſtance one from another. Therefore in ordering of them the dimenſions of the Rooms are to be conſider'd, becauſe it is plain that a large Room wants more Light than a little one; and if Windows are made leſs in number and ſmaller than the Building requires, the Rooms will be dark: as on the contrary, if they exceed both in number and largeneſs of the opening, they'll render the Rooms uninhabitable, becauſe of the Air which will bring in, according to the ſeaſons, too much cold, or too much heat; except they are ſituated to a temperate expoſition of the Sun. For

 theſe

* *Plate* XXXIV.

theſe Reaſons, the breadth of the opening of the Window ought not to exceed the fourth part of that of the Rooms, nor to be leſs than the fifth: they muſt likewiſe have in height two Squares and a twelfth part. And becauſe a Houſe is made of ſeveral Rooms, ſome of a large, ſome of a ſmall, and ſome of a middle ſize; and that nevertheleſs all the Windows of the ſame Story are to be equal, I chuſe to take the meaſure of them on the dimenſion of thoſe Rooms whoſe length is two thirds more than the breadth, that is, as 10 Foot are to 30: and I divide that breadth into 4 parts and a half, one of which ſerves for the breadth of the opening of the Windows, giving to the height two of the ſaid parts, with a ſixth of the breadth, and I keep the ſame proportion of all the other Windows. Thoſe of the ſecond Story ought to be lower by a ſixth part than thoſe of the firſt; and if there be ſome others above them (as in a third Story) they muſt follow the ſame diminution. One muſt take great care alſo, that the Windows may be equal one with the other in their rank and order; ſo that thoſe on the right hand may anſwer thoſe on the left, and thoſe above may be plac'd right over thoſe below. Likewiſe, the Doors muſt be exactly over one another, to the end that the void may be upon the void, and the ſolid upon the ſolid. Moreover, they require to be upon the ſame Line, that one may ſee through from one end of the Houſe to the other, which is very beautiful and cool in the Summer, and has many conveniencies beſides.

FOR ſolidity's ſake certain *Arches* are turn'd over the Cornices of Doors and Windows, which Workmen call *Flat-Arches*, to prevent the Doors and Windows from being preſs'd with too much weight, which is of no little importance for the laſting of the Building. The Windows muſt be diſtant from the Corners of the Building as much as poſſible, as I have obſerv'd before; becauſe that part whoſe Office is to ſupport, bind, and faſten all the reſt of the Fabrick, ought not to be open and weaken'd. The Pilaſters, Jambs, or Cheeks of Doors and Windows are not to be thicker than the fifth part of the breadth of the opening, nor leſs than the ſixth. It remains to ſee their Ornaments.

CHAP. XXVI.

Of the Ornaments of DOORS *and* WINDOWS.

HOW to enrich and adorn the principal Doors in Buildings, may eaſily be known from what *Vitruvius* teaches in the 6th Chapter of his 4th Book, with the help of the explanation and draughts made by the moſt Reverend *Barbaro* upon that Subject, together with what I have ſaid and deſign'd already about the five Orders: wherefore leaving theſe things, I ſhall only give here ſome Ornaments of the Doors and Windows of Chambers, in the manner that they may be variouſly made; and will alſo ſhew the method of profiling each Member with grace, and its due *Projecture*. The Ornaments which are given to Doors and Windows, are the *Architrave*, *Frize*, and *Cornice*. The *Architrave* turns about the Door, and ought to be as thick as its *Jambs*, or *Pilaſters*: which (as I have ſaid) muſt not be leſs than the ſixth part of the breadth of the opening, nor more than a fifth. The dimenſions of the *Frize* and *Cornice* are alſo taken from the ſame opening. Of the two following inventions the firſt, that is the uppermoſt, is meaſur'd thus.

* The Architrave *(which is ſuppoſ'd here to be the ſixth part of the breadth of the opening)* is divided into four equal parts, three of which are allow'd for the *Frize:* and five, like them, will make the *Cornice.* The *Architrave* is again divided into ten parts, the firſt *Faſcia* takes up three, the ſecond four; and the three remaining are ſubdivided into five, two of which are for the *Regula*, or *Liſtel*, the three others for the *Cima reverſa:* its *Projecture* is equal to its height; the *Regula* projects leſs than half of its thickneſs. The *Cima reverſa* is made in the following manner: a ſtrait Line being drawn from the underneath of the *Regula* to the upper part of the ſecond *Faſcia*, that Line is divided into two parts, ſo as each of theſe halfs is the *Baſe* of a Triangle *Iſocel, that is of two equal ſides*; and on the Angles oppos'd to theſe *Baſes* the fix'd foot of the Compaſs being plac'd, and the *Curve Lines* drawn, they'll form the ſaid *Cima reverſa.*

The *Frize*, which takes up three parts of the *Architrave* divided into four, is made the *Convex* of a portion of a *Circle* leſs than the *Semicircle*; its largeſt diameter falling *plum* over the *Cimaſium* of the *Architrave.* The five parts allow'd for the *Cornice*, are diſtributed to its Members in this manner; one is given to the *Cavetto* with its *Liſtel* (which is a fifth part of the ſaid *Cavetto)* the projecture of which *Cavetto* is two thirds of its height. To deſign it, one muſt form a Triangle *Iſocel*, the center of which is (as here) the Angle C; ſo that the *Cavetto* becomes the *Baſe* of the Triangle. Another of the ſaid five parts is given to the *Ovolo.* The projecture of it is alſo the two thirds of its height, and is likewiſe form'd by the help of an *Iſocel* triangle, its Center being at the point H. The other three parts of the five, are ſubdivided into 17; eight for the *Corona* with its *Liſtels*, of which that above makes one of the eight parts; and that which is below, and makes the hollow of the *Corona*, has but a ſixth part of the *Ovolo.* The other nine are for the *Cima recta* and its *Regula*, which is a third of the ſaid *Cima.* But to make the ſaid *Cima* of an elegant form and juſtneſs, the ſtrait line AB is drawn, and divided into two equal parts at the point C; one of theſe two parts is ſubdivided into ſeven, whereof ſix being taken at the point D, one muſt draw the two Triangles AEC, and CBF: then on the points E and F a foot of the Compaſs being fix'd, the portions of the *Circles* AC, and CB, will form the ſaid *Cima recta.*

The *Architrave* of the ſecond invention (which is the lowermoſt) is likewiſe divided into four parts, three of which are given to the height of the *Frize*, and five like them to the *Cornice.* The *Architrave* is again divided into three parts, two of which being ſubdivided into ſeven, three are for the lower *Faſcia*, and four for the other. The third part of the *Architrave* is divided into nine parts, of two whereof is made the *Aſtragal*, and the ſeven remaining, being ſubdivided into five, three are for the *Cima reverſa*, and two for the *Orlo*, or *Regula.*

The height of the *Cornice* is divided into five parts and three quarters. One of which being ſubdivided into ſix parts, five are given to the *Cima reverſa* above the *Frize*, and the ſixth for its *Liſtel*; the *Projecture* of the ſaid *Cima* is equal to its height, as is that of the *Liſtel.* The *Ovolo* takes the ſecond part of the height of the *Cornice*, and its *Projecture* is three quarters of its height; the *Liſtel* above the *Ovolo* is a ſixth of it, and projects juſt as much. The other three parts of the height of the *Cornice* are ſubdivided into 17, eight of which are for the *Corona*, whoſe projecture is one third more than its height. The other nine are ſubdivided into four parts; three are for the *Cima recta*, and one for the *Orlo* or *Liſtella.*

The

* *Plate* XXXV.

The three quarters remaining are ſubdivided into five parts and a half; of one is made the *Liſtella*, and the four and a half for the *Cima reverſa* above the *Corona*. The projecture of this *Cornice* is equal to its thickneſs, or height. By the means of the two following Deſigns, one may know the Members of the ſecond invention.

Members of the *Cornice* of the firſt invention.

I. *Cavetto.*
K. *Ovolo.*
L. *Corona.*
N. *Cima recta.*
O. *Orlo*, or *Liſtella.*

Members of the *Architrave.*

P. *Cima reverſa.*
Q. Firſt *Faſcia.*
V. Second *Faſcia.*
R. *Orlo*, or *Liſtella.*
S. *Convexity*, or *ſwelling of the Frize.*
T. *Part of the Frize which enters into the Wall.*

* OF theſe two other inventions following, the *Architrave* of the firſt mark'd F, is likewiſe divided into four equal parts, three and a quarter of which make the height of the *Frize*, and five like them is the height of the *Cornice*. The *Architrave*, being divided into eight parts, five are given to the *Plain*, and three to the *Cimaſium*; which *Cimaſium* is ſubdivided into eight, three for the *Cima reverſa*, three for the *Cavetto*, and two for the *Orlo* or *Regula*. The height of the *Cornice* is divided into ſix parts, two are for the *Cima recta* with its *Orlo* or *Regula*, and one for the *Cima reverſa* with its *Liſtella*. The *Cima recta* is divided into nine, eight of which are for the *Corona* with its *Liſtella*. The *Aſtragal*, or *Tondino*, above the *Frize*, is but a third of one of the ſaid ſix parts; and what remains between the *Corona* and the *Aſtragal*, is left for the *Cavetto*.

IN the next Invention the *Architrave* mark'd H, is divided into four parts: the *Frize* is as high as three and a half of them, and the *Cornice* as five. The *Architrave* being again divided into eight, the *Faſcia* takes five, and the three others are for the *Cimaſium*: which *Cimaſium* being ſubdivided into ſeven, whereof the *Aſtragal* takes one; the ſix are again ſubdivided into eight, three of which are for the *Cima reverſa*, three for the *Cavetto*, and two for the *Orlo*, or *Regula*.

THE whole height of the *Cornice* is divided into ſix parts and three quarters. The *Cima reverſa*, *Ovolo*, and *Dentilli* take three. The *Cima* projects as much as its ſquare, the *Dentilli* project as much as two of three parts of their height, and the *Ovolo* as three of four parts. The *Cima reverſa*, between the *Cima recta* and the *Corona*, is made of the three quarters of a part of the firſt diviſion. The three remaining parts are ſubdivided into 17. Nine of which are for the great *Cima* with its *Orlo*, or *Regula*; and eight for the *Corona*. This *Cornice's Projecture* is equal to its height, or thickneſs, as the other aforeſaid.

* *Plate* XXXVI.

CHAP. XXVII.

Of CHIMNEYS.

THE Ancients uſed to heat their Chambers in this manner. They made their Chimneys in the middle of the Room, with Columns, or *Modilions* to bear up the *Architrave*, upon which were the *Funnels* of the Chimneys made in a Pyramidal form, which convey'd away the Smoak. Of that kind one may be ſeen at *Baiæ* near the Fiſh-pond of *Nero*; and another near *Civita-vecchia*. And when they did not care to have any Chimney, they uſed to make *Pipes*, or *Funnels*, in the thickneſs of the Walls, through which aſcended the heat of the fire which was kept under the Rooms, and ſo was convey'd thro' certain *Vents*, or *Valves* that were at the top of the ſaid *Pipes*, or *Funnels*. Much like this the Gentlemen of the Family of *Trenti* in the *Vicentin* refreſh in the Summer the Chambers of their *Villa* at *Coſtoza*. For that Building is ſituated upon Hills, in which are certain great *Caves*, call'd by the Inhabitants *Covali*, which in former times were Quarries. Theſe, I ſuppoſe, *Vitruvius* means in his ſecond Book, wherein, ſpeaking of Stones, he tells us that in the *Trevizan* there is a ſort of Stone which is ſaw'd like Timber. From theſe Caves ariſe extreme cold Winds, which theſe Gentlemen introduce into their Houſe, through certain ſubterranean Vaults, named by them *Ventiducts*: and by the means of certain *Pipes* or *Funnels*, like to thoſe whereof I have ſpoken before, they make them run through all the Chambers, opening and ſhutting them at pleaſure, to take more or leſs of that cold Air, according to the Seaſon. And though this place would be wonderful, were it only for this ſingular conveniency, nevertheleſs that which renders it ſtill more admirable and worthy to be ſeen, is another place call'd the *Priſon of the Winds*; which is a ſubterranean Room contriv'd by *Signior Franciſco di Trenti*, named by him *Æolia*, that is, the Palace of *Æolus*, in which many of theſe *Wind-Pipes*, or *Ventiducts*, are diſcharg'd: and to render it beautiful and worthy of this name, he has ſpared neither pains, nor coſts of any ſort. But to return to our Chimneys, we *Moderns* place the *Funnels* of the Chimneys in the thickneſs of the Walls, and carry them quite through the Roof, and higher than the *ridge*, that they may the better carry the Smoak away into the Air. One muſt take care that the Funnels be made neither too wide, nor too narrow: for if they be too wide, the Wind having a great deal of room to play in, will drive back the Smoak into the Room; and if they are too narrow, the Smoak, not having a free Paſſage, will alſo return backwards. Therefore the Chimney *Funnels* of Chambers are not to be made narrower than half a Foot, nor larger than nine Inches; and in length two Foot and a half. The mouth of the *Pyramide*, where it meets the *Funnel*, muſt be a little narrower, that in caſe the Smoak happens to come back, it ſhould put a ſtop to its returning into the Room. Some make the *Funnels* crooked, thinking that by the winding of them, and the force of the Fire, which naturally drives the Smoak upward, it can't return back into the Room. The Chimney-tops, or openings by which the Smoak goes out, muſt be broader, and free from any combuſtible matter. The *Jambs* and *Mantle-Trees* of Chimneys, on which the *Funnels* lie, muſt be curiouſly wrought; for as to *Ruſtick-work*, it does not look well, unleſs it be in a very large Building, for the Reaſons aforemention'd.

CHAP. XXVIII.

Of Stair-caſes, *and their different ſorts; of the number and proportions of their Steps.*

THERE ought to be great care taken in the well-placing of Stair-caſes; for there is not little difficulty to find a place convenient enough, ſo as the Stairs may not be a hindrance to the reſt of the Building. Therefore a particular place muſt be mark'd out, that no part of the Building ſhould receive any prejudice by them. There are three openings neceſſary to a Stair-caſe. The firſt is the Door-way that leads to them, which the more it is in ſight, the better it is; and I highly approve that it be in ſuch a place, where before one comes to it, may be ſeen the beſt part of the Houſe; for altho' the Houſe ſhould be little, yet at this rate it will appear much larger: therefore the ſaid Door muſt be obvious, and eaſy to be found.

THE ſecond opening is that of the Windows, through which the Light comes into the Stairs. They ought to be in the middle, and large enough that all the Stairs may be every where inlighten'd. The third opening is the Landing-place, by which one enters into the Rooms above, which ought to lead firſt into the largeſt places, fair and well adorn'd.

STAIR-CASES will be perfect, if they are ſpacious, light and eaſy to aſcend: as if, in ſome ſort, they ſeem'd to invite People to mount. To make them light-ſome, they muſt have a perfect Light, that, as I ſaid, diſperſes it ſelf equally to all parts. As to their ſpaciouſneſs, 'twill be enough, if in reſpect of the bigneſs and quality of the Fabrick, they do not appear too little, nor too narrow. Nevertheleſs they muſt never be narrower than four Foot, to the end that if two Perſons meet, they may commodiouſly paſs one by the other. They will be convenient enough with regard to the whole Building, if the *Arches* under the Steps are made ſo large as to hold ſome Goods, or other neceſſary things; and convenient likewiſe for the Perſons that come up and down, if the Stairs are not too ſteep, nor the ſteps too high. Therefore they muſt be twice as long as broad. The Steps ought not to exceed ſix Inches in height; and if they be lower, they muſt chiefly be ſo to long and continued Stairs, for they will be ſo much the eaſier, becauſe one needs not lift the Foot ſo high: but they muſt never be lower than four Inches. The breadth of the Steps ought not to be leſs than a Foot, nor more than a Foot and a half. The Ancients uſed to make the Steps of an odd number, to the end that beginning to aſcend with the right Foot, they might end with the ſame Foot, which they took to be a good Omen, and a greater mark of reſpect ſo to enter into the *Temple*. It will be ſufficient to put eleven or thirteen ſteps at moſt to a flight, before one comes to half-pace, thus to help weak People, and of ſhort breath, that they might reſt a little, and that if ſomething happens to fall from above, it may ſtop there.

STAIRS are made either ſtrait, or winding. The ſtrait may be made either divided into two *Branches*, or Paſſages, or quite ſquare, in ſuch a manner that they turn on four ſides. * To make them in this laſt manner, all the ſpace muſt be divided into four parts, whereof two muſt be for the Stairs, and two for the vacancy

* *Plate* XLI.

tancy in the middle, by which the Stairs ſhould receive Light if it be left open. They may be made with a Wall within, and then within the two parts which are allow'd for the Stairs, the Wall is included, which makes the *Caſe* or *Newel*; tho' there is no neceſſity to do it, for it may be done without a Wall within. Theſe two ſorts of Stairs were invented by *Signior Lewis Cornaro*, a Gentleman of an excellent Genius, as one may judge by the Deſign of a very fine *Gallery*, and a magnificent Palace which he has erected for himſelf at *Padua*.

As for *Winding Stairs*, which are alſo call'd *Cockle-Stairs*, ſome are round, ſome oval, ſome with a *Newel* in the middle, ſome open, eſpecially when room is wanting; becauſe they take up a great deal leſs than the ſtrait Stairs, yet not ſo eaſy to go up and down. Thoſe which are open in the middle are very handſome, becauſe they may have light from above; and that thoſe which are above, may ſee thoſe who are coming up, and are alſo ſeen by them.

*THOSE which have a *Newel* in the middle are made in this manner. The diameter being divided into three parts, two are given to the Steps, and the third is for the *Newel*, as in the Deſign mark'd A: or otherwiſe the diameter may be divided into ſeven parts, three of which are for the *Newel*, and four for the Steps. Juſt in this manner is the *Stair-caſe* of the Column of *Trajan* at *Rome*: and if the Stairs are made circular, as in the Deſign B, they will be handſomer and longer than if they were made ſtrait.

† *BUT as it may happen that the ſpace will not give room for theſe meaſures, then the diameter may be reduced and divided, according as it is here repreſented,* C D.

**THE diameter of the Stairs open in the middle muſt be divided into four parts, two of which are for the Steps, and two for the middle.

BESIDES the aforeſaid ſorts of Stairs, there has been another ſort of winding Stairs, invented by *Signior Marc-Antonio Barbaro*, a Gentleman of *Venice*, of an excellent Judgment, which is very convenient for narrower places. It has no *Newel* in the middle, and the Steps being winding or circular, are much longer: its diviſion is the ſame as the aforeſaid. See the Deſign E F.

††THOSE which are Oval, are divided in the ſame manner, as the round; they are very handſome and pleaſant, becauſe all the Windows and Doors are in the middle, and at the head of the Oval, and are very commodious. I have made one open in the middle, at the Monaſtery of *Charity* at *Venice*, which is without a *Newel*, and has had a very good Succeſs.

A. *Winding or cockle Stairs with a Newel in the middle.*
B. *The ſame with circular Steps.*
C. *The ſame with a Newel of a leſs diameter with ſtrait Steps.*
D. *The ſame with circular Steps.*
E. *Winding Stairs open in the middle.*
F. *The ſame with circular Steps.*
G. *Oval Stairs open in the middle.*
H. *Another Oval-Stair with a Newel.*
I. *Strait ſquare Stairs open in the middle.*
K. *Another with a ſquare Wall in the middle.*

*†THERE is another very handſome manner of Stairs, which the magnanimous King *Francis* the Firſt, cauſed to be made in the Caſtle of *Chambor*, near *Blois* in *France*. 'Tis built in this manner. There are four Stair-caſes, which have

* *Plate* XXXVII. † *Plate* XXXVIII. ** *Plate* XXXIX. †† *Plate* XL. *† *Plate* XLII.

have four entrances, one entry to each: and they go up the one over the other in ſuch a manner, that being made in the middle of the Building, it may ſerve for four Apartments; ſo that it is not poſſible to go from one into the other, and yet becauſe it is open in the middle, they all ſee each other going up and down, without juſtling one another. This Invention being new and beautiful, I have placed here the Deſign of it, and mark'd each Stair with its particular Letters on the *Plan* and *Section*, that one may know where each of them begins and where it ends.

THERE were alſo to the *Porticos* of *Pompey* at *Rome*, leading to the *Jews* quarter, three Stairs of the ſame kind of an admirable form; for being placed in the middle of the Edifice, and where they could not receive any light but from above, the Architect had ſet them upon Columns, to the end that the light might diſtribute it ſelf to all parts alike. According to this Example, *Bramante*, the moſt skilful Architect in his time, made one at *Belvedere*; but without Steps, having the four Orders of Architecture, *Dorick*, *Ionick*, *Corinthian* and *Compoſite*.

To make thoſe *Stair-caſes*, the whole ſpace muſt be divided into four parts, two whereof are for the void ſpace in the middle, and one on each ſide of the Steps and Columns. There are many other faſhions of *Stair-caſes* in ancient Edifices, as *Triangular*; and of this ſort are thoſe of the *Cupola* of St. *Maria Rotunda*, which are open in the middle, and receive Light from above.

* IN the ſame City thoſe which are in the Church of *Sancto Apoſtolo*, towards *Monte Cavallo*, are very fine; they were double, and many have ſince taken Models thereof: they led to a *Temple* ſeated on the top of the Mountain, as will appear in my Book of *Temples*; and of this ſort of Stairs, is the laſt among the Deſigns.

CHAP. XXIX.

Of ROOFS.

HAVING rais'd the Walls to their intended height, and made the Vaults, laid the Joyſts of the Floors, brought up the Stairs, and perform'd all thoſe things we have ſpoken of hitherto, we are now to raiſe the *Roof*, which embracing every part of the Building, and with its weight equally preſſing upon the Walls, is as a band to all the Work. Beſides that it defends the Inhabitants from Rain, from Snow, from the burning of the Sun, and from the moiſture of the Night; it is alſo of no ſmall help to the Building, caſting off from the Walls the Rain-water, which altho' for a little while it ſeems to do but little hurt, yet in proceſs of time cauſes much damage. *Vitruvius* ſays that the firſt Men built their Houſes with flat Roofs, but finding that thereby they were not ſufficiently defended from the Weather, neceſſity made them raiſe the middle, in order to give the Water its Current. Theſe Roofs are to be rais'd to a higher or lower pitch, according to the Country in which they are. Wherefore in *Germany* they raiſe their Roofs to a very high pitch and ſharp, by reaſon of the great quantity of Snow that falls there; covering them with *Shingles*, which are ſmall pieces of thin Wood, for fear they ſhould be cruſh'd by the great weight of the Snow. But we, who dwell in a more temperate Country, ought to chuſe a Roof of a handſomer form, allowing only a ſufficient Current for the Water. Therefore the breadth of the

* *Plate* XLIII.

Building is to be divided into nine parts, two of which will be a ſufficient pitch, becauſe if it was done of a fourth, the Roof would be too ſtiff; and the Tyles, or Slates, would hardly remain upon it; and in making it only of a fifth, it would be ſo flat, that the Tyles and the Snow muſt lie too heavy upon them. Gutters are commonly made round the Houſes to convey off the Rain-Water by Pipes, or Spouts: and over theſe ought to be laid at leaſt a Foot and a half of Wall, becauſe they will be not only thereby the ſtronger; but this will preſerve the Timber againſt the Rain, and the moiſture of the Weather. There are many ways of framing the Timber of the Roofs, but when the middle Walls bear the Girders, they are eaſily laid on; and 'tis what I do much approve, becauſe the out-Walls are leſs preſs'd, and if any end of the Girder ſhould happen to rot, the Roof would not be in ſo much danger of falling.

The End of the Firſt Book.

NOTES and REMARKS of INIGO JONES upon the Plates of the First Book of *PALLADIO*'s Architecture:

Taken from the Manuscript of the said INIGO JONES, in the Library of *Worcester*-College, *Oxford*, *June* 23, 1741.

PLATE IV. I. Going to *Naples* I saw a Wall of an ancient House of irregular Stones like this, and it did look very well.

PLATE V. This Wall is of the Temple of *Augustus*. I have often observed that such Walls have a grand look. In the Book of Antiquities you will find these manner of Walls in various Places.

PLATE VII. The Walls of the Town of *Naples* are of this sort.

PLATE X. A. The Impost of the *Tuscan* Arches is in height $\frac{1}{7}$ part of the Pilaster or Jambs B.

PLATE XI. K. The Pedestal is one Module in height, and made quite plain. See *Vitruvius* lib. 3. fol. 142.

I. The Base with one Boultel, or Torus, is taken from *Vitruvius*, and it is an antique Base at *Spoletto*, *Serlio* fol. 53. and the same Base is to the Columns of *Trajan* and *Antoninus*.

PLATE XII. F. The Architrave of the *Tuscan* Order is made of Wood, as high as it is broad, and the breadth is not to exceed the body of the Column under the Capital. See the first Design of this Order.

The Mouldings of the Base Q. Capital I. Freeze and Cornice, are taken from the Arena of *Verona*, and of other Antiquities and Amphitheatres.

The Wave, or *Gola Dritta*, and Fillet I. instead of the Ovolo, in my Judgment is very gracious.

The Cimasia and Fillet G, is not used, yet very good.

P. This Wave, or *Gola Reversa*, is put in the place of a Torus.

This Invention is partly taken from the Portico of *Pompeio Serlio*, fol. 55.

PLATE XIV. The Trigliph over the Key-stone does well; the Key-stone is to be half the diameter at the bottom of the Column, and also the said Key-stone is to be according to the Column; but those of *Scamozzi* are better, which are by the height of the Architraves; therefore the Key-stones are slender as the Order is slender.

A. The Impost of the Arch is $\frac{1}{9}$ part of the Pilasters or Jambs C, in height from A to B.

PLATE XV. L. This Ovolo Rostrato is used in all the Cimasia's following, and is taken from the Temple of *Mars* the Revenger, lib. 4. Plate 11. and of many other Temples I have observed.

B. This Cimasia is too little.

The Attick Base. See the Temple of *Bacchus*, Plate 67; that of *Tivoli*, Plate 71; that at *Naples*, Plate 74; that at *Trevi*, Plate 75; that at *Siena*, Plate 82; and, that at *Pola*, Plate 86.

PLATE XVI. C. This Corona is taken from the Theatre of *Marcellus*; but the upper Members and under ones of the Corona are varied, the Freeze is taken entirely from the said Theatre of *Marcellus*: The Architrave is taken from the Temple in *Foro Boario*. See *An. l'Abacco* fol. 16. and *Serlio* lib. 4. fol. 20.

PLATE XVIII. A. This Key-stone is half the diameter of the Column at the bottom, and is in height twice the Archi-volto.

B. The Impost of the Arch is in height 1 part of 10 and $\frac{1}{2}$ of the Pilaster or Jamb from B to C, which is half as much more as the thickness of the Pilasters or Jambs.

PLATE XIX. *Palladio* likes this Base better than that described by *Vitruvius*; this is the Attick Base with a small Boultel or Torus B, under the Cimbia. This Base is taken from the *Temple of Peace*, Plate 4, and from the Temple of *Jove*, Plate 32, and from the Temple of *Mars*, Plate 45.

The Cimasia G is taken from the Temple of *Nerva*, Plate 17.

The Cimasia G G is taken from the second Temple of *Nisines*, Plate 94, but varied very much from it, and has an Ovolo over the Wave, and a Boultel and Cimbia instead of the Casement; it may be called *Palladio*'s own Invention.

When there is a Casement, or Gola, the Pedestal H has no Cimbia, for that will serve instead of it. See the Pedestal of the Composite Order, Plate 34.

I. I. This side of the Base is taken from the Temple of *Nerva*, Plate 17. The other side marked single I. is taken from the Temple of *Fortuna Virilis*, Plate 34.

PLATE XXI. This is *Vitruvius*'s Ionick Base, but to my mind is not good.

PLATE XXII. E. The square Modilions are taken from the Temple of *Concordia*, Plate 97. but under them is a Dentil, and under it an Ovolo and Cavetto.

PLATE XXIV. A. The Key-stone is half diameter of the Column at the bottom by the Base.

B. The Impost is one part in height of the 10 parts, but $\frac{1}{8}$ of the height of the Pilaster or Jamb, from B to C, which is as much with the Astragal; which in all has twice the thickness of the Membretto.

PLATE XXV. This Base is taken from the Temple of *Nerva*, Plate 18. but the Astragal differs something. See likewise the Temple

Temple of *Niſmes*; but in that there are two Tondini's and a Fillet under the Caſement, and one Tondino above it, Plate 90.

All the Cimaſia's of the Pedeſtals, *Palladio* does compoſe according to the Baſe of the Columns; but the Ancients varied them more.

The Baſe of this Pedeſtal is taken from the Temple of *Pola*, Plate 86. the Carving is added, and the Members have better proportion than the Baſe of the Temple of *Fortuna Virilis*, Plate 34.

PLATE XXVI. A. The Cornice has as much Projection as its height.

B. Is the Depth of the Coffers of the Roſes, which is the full depth of both Ovolo and Fillet of the Coffers.

C. The Fillet is over the Gulfet of the Cartooches or Modilions.

D. I do find the numbers within the prick'd Line, to be falſe; for there is in the upper part of the Cornice ſet down 19 parts and a half, whereof I can find no more than 17 and a quarter.

The Field or Coffers of the Roſes in the Soffita of the Corona of the Cornice is a perfect Square from E to F. The Cartooches G is half of it in width of the Coffers.

H. The Gullet is the *Soffita* of the upper *Cima recta* of the Cornice.

I. Is the Margin round the Square of the Coffers, and this was uſed when the Spaces were too narrow to make a perfect Square; but when the Spaces were too broad, the Coffers of the Roſes were longer than broad; both are defective. In moſt of the Ancients this ſaid Space I. was broader than long, which to my mind is much better.

From K to L of the Abaco is one diameter and a half, and this Rule is to be obſerved in all the Corinthian and Compoſite Capitals; when you are to make double Columns at diſtance one from another $\frac{1}{4}$ diameter, the Abaco's will but juſt touch.

M. The Bell or Campana of the Capital goes ſtreight up to the biggeſt Leaves.

N. The Bending Leaves are the 4th part of their height.

O. The perpendicular prickt Line ſhews the Bowing of the leſſer Leaves to be even with the Ovolo of the Bell.

P. Is the thickneſs of the 1ſt Tiers of Leaves, mark'd in the Plan of the Capitals.

Q. The thickneſs of the 2d Tiers of Leaves, which is to the Depth of the Flutings.

The prickt Line is the Projection of the Leaves from the extreme part of the Abaco, to the extreme part of the Aſtragal, which is Projection enough. See *Scamozzi*, lib. 6. fol. 139.

PLATE XXVIII. A. This Key-ſtone is $\frac{1}{4}$ the diameter of the Column at the bottom, and is as high as the Archivolto, or the 9th part of the Opening of the Arch.

B. The Impoſt is in height 1 part of 10 and $\frac{1}{4}$ of the height of the Pilaſter or Jambs from B to C, which is as much beſides the Aſtragal as the Membretto is thick.

PLATE XXIX. B. This Baſe is compoſed of the Attick and Ionick Baſes, and is taken from the Rotonda, Plate 60. and from the Temple of *Neptune*, Plate 101. and from the Temple of *Mars* the Revenger, Plate 11. But there are ſome Alterations, as an Aſtragal between the under Boultel Fillet, and the Cimbia. Being large, there is no Aſtragal under it, but moſt of all from the Temple of *Jove Stator*, Plate 52.

The height of this Impoſt is equal to the thickneſs of the Pilaſters or Jambs.

This Cimaſium of the Pedeſtal under the Baſe of the Column is taken from the ſecond Temple of *Niſmes*, Plate 94. but there is an Ovolo over the Wave, where the Cimbia is C. Alſo there is a Boultel over it, or an Orlo. None of *Palladio*'s Pedeſtals has a Cimbia but this. See the Temple of *Antoninus* and *Fauſtina*, Plate 24.

The Baſe of this Pedeſtal is taken from the Temple of *Sciſi*, Plate 82. but the Members of that are not carved, for I find the Ancients never carved their Caſements for more Solidity, and becauſe the Baſes being on the Ground, neither the Cimaſia of a Pedeſtal for the ſame reaſon.

PLATE XXX. When a Cornice ſtood far from the Eye, the Ancients did make the Members larger, and ſometimes did put Modilions next to the Frize, which made the Architrave, Frize, and Cornice, ſhew all in one. Of this Secret, *Scamozzi* has been purblind, and underſtood it not. See the *Coliſeo*'s upper Order, *Serlio* fol. 65. lib. 3. This Cornice is taken from the Temple of *Jove*.

The double ſquare Modilions of the Compoſite Cornice are taken from the Temple of *Jove*, and of the Frontiſpiece of *Nero*, Plate 33.

In theſe two Temples the Waves are richly carved, but in this it is not.

Scamozzi, lib. 6. fol. 20. taxes *Palladio* for this Cornice wrongfully, for having the Members under the Modilions; not knowing that the Modilions and the two Faſcias ſtood far from the Eye.

The Architrave is taken from the ſaid Temples, the ſecond Faſcia, and Cimaſia extraordinary; but in them is an Ovolo under the Cavetto, and in this is a Gola reverſa: the Ovolo does agree better with the Cavetto, and it is in the Architrave of the Temple of *Pallas*. An Houſe, 'tis true, that in the Architraves of Doors is uſed as in the Temple of *Veſta*, Plate 72. and in the Temple of *Niſmes*, Plate 90. but not in the real Cornices.

PLATE XXXIV. The manner of Arches are ſix, *viz.* A Crochiera I. a Faſcia Q, a Remenato, or Part of a Circle H, a Rotonda G, a Lunette P, and a Conca N and K; which two laſt are both alike, only one has more Seſto than the other.

That a Faſcia is the ſame as a Conca, and terminates to the Wall.

There are mixt Arches, which I note apart.

O. This ſhews the height of the inſide of the Lunette.

Scamozzi taxes *Palladio* for uſing the diagonal Line, as being ſo near a Square and half.

K. The Conca is leſs in the Square than the others, and more in Seſto.

The Center to make the Arch K, is the Baſe of

of the Triangle M. I. The Faſcia Q. I have ſeen in many Galleries, long Rooms, Portico's, and Entries.

I obſerved the Crochiera or Groining Arches, are not much uſed to the Rooms above ſtairs. The Conca is more ornamented for the upper Rooms. The Arches and Faſcia are often inrich'd and adorn'd with various ſorts of Compartiments.

This is from the Corners to the Square, half of the Ground in breadth, and this is the common Rule of the Bricklayers; but this holds not ever, or very ſeldom. Some Rooms have Lunette in the Corners and Square in the middle.

PLATE XXXV. This is a plain Cornice of *Palladio*, that has a Fillet under the Ogee marked B; but *Scamozzi* puts this Cornice to the *Tuſcan* Doors, lib. 6. fol. 66.

O. This is a ſquare Fillet over the Ogee.

X. This is another plain Cornice of *Palladio*, and *Scamozzi* puts it to the Dorick Doors, lib. 6. fol. 81. the Architrave has no Aſtragal under the Gola reverſa; he puts this Architrave to the Ionick and Compoſite Orders, and there is an Ovolo between the two Faſcias carved with Leaves, which is all the difference he makes.

The Projection of the bottom of the Gola reverſa, is ¼ part of the Square, as the Pricks ſhew.

PLATE XXXVI. F. This Architrave is divided into 8 parts, 5 are to be given to the plain Faſcia, the other 3 parts are to be ſubdivided into 9, 4 for the Gola reverſa, 3 for the Hollow, and 2 for the Square or Fillet.

In the ancient Architraves, where there is an Ovolo under the hollow, they uſed to put an Aſtragal under it carved, with Beads.

The Invention of the Cimaſia of the Architrave F, is taken from the *Temple of Peace*, lib. 4. Plate 4. Plate 33. *ibid.* and Plate 45. *ibid.* but thoſe Arches have an Ovolo carved under the Cavetto.

L. The Cornice has few Members and plain, it may ſerve very well to the Dorick Order. *Scamozzi* puts this Architrave to the Corinthian Order, with two Faſcias, and a Boultel between.

K. This other kind of Cornice has more Members, and *Scamozzi* puts this to the Ionick Order, with Dentils carved.

H. This Architrave is of another Invention; the Cimaſia of the Corona of the Cornice, *Scamozzi* likewiſe puts to his Roman Order, as he calls it, and makes the Dentil plain, and carves the Ovolo and Gola reverſa.

PLATE XXXVIII. D. The winding Stairs have a Pillar in the middle, with crooked Steps, which makes the going wider than the ſtreight ones.

E. This is the Center of the circular Steps, which is taken from every three Steps F.

PLATE XXXIX. F. The winding Stairs is quite open in the middle, and this Mark G. is the Center of the circular Steps, which is taken from every four Steps H, which makes the going wider than the other.

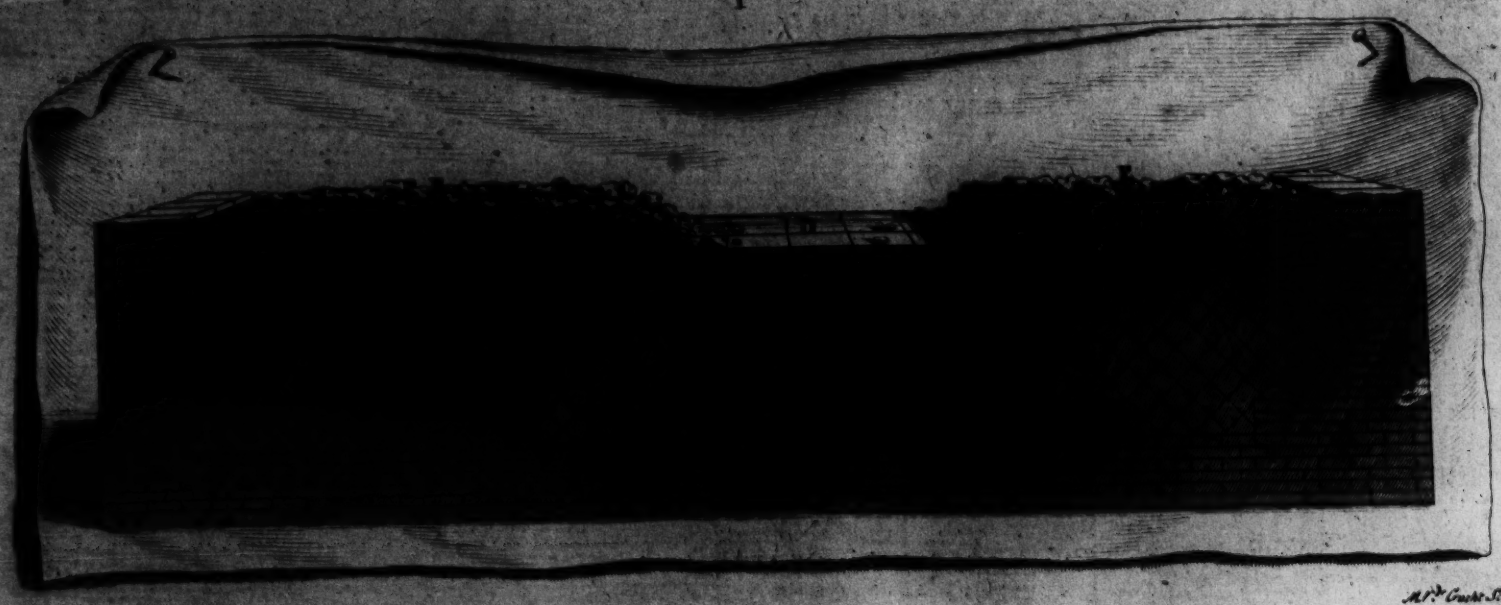
PLATE XLII. I have ſeen theſe Stairs at *Chambur* in *France*, and there are but two ways to aſcend; and round the Newel is a Wall with Windows in it, to give light to thoſe Stairs. I am ſure *Palladio* has heard talk of this Stair-caſe, and from them he has invented theſe, which are much more magnificent.

PLATE XLIII. This double Stair-caſe is very eaſy to aſcend, up a Hill, or ſome Temple, or Palaces, or other Places: There are ſuch Stairs at *St. Apoſtoli*, by *Monte Cavallo* at *Rome*.

BRITISH MUSEUM 22 OCT 78

I

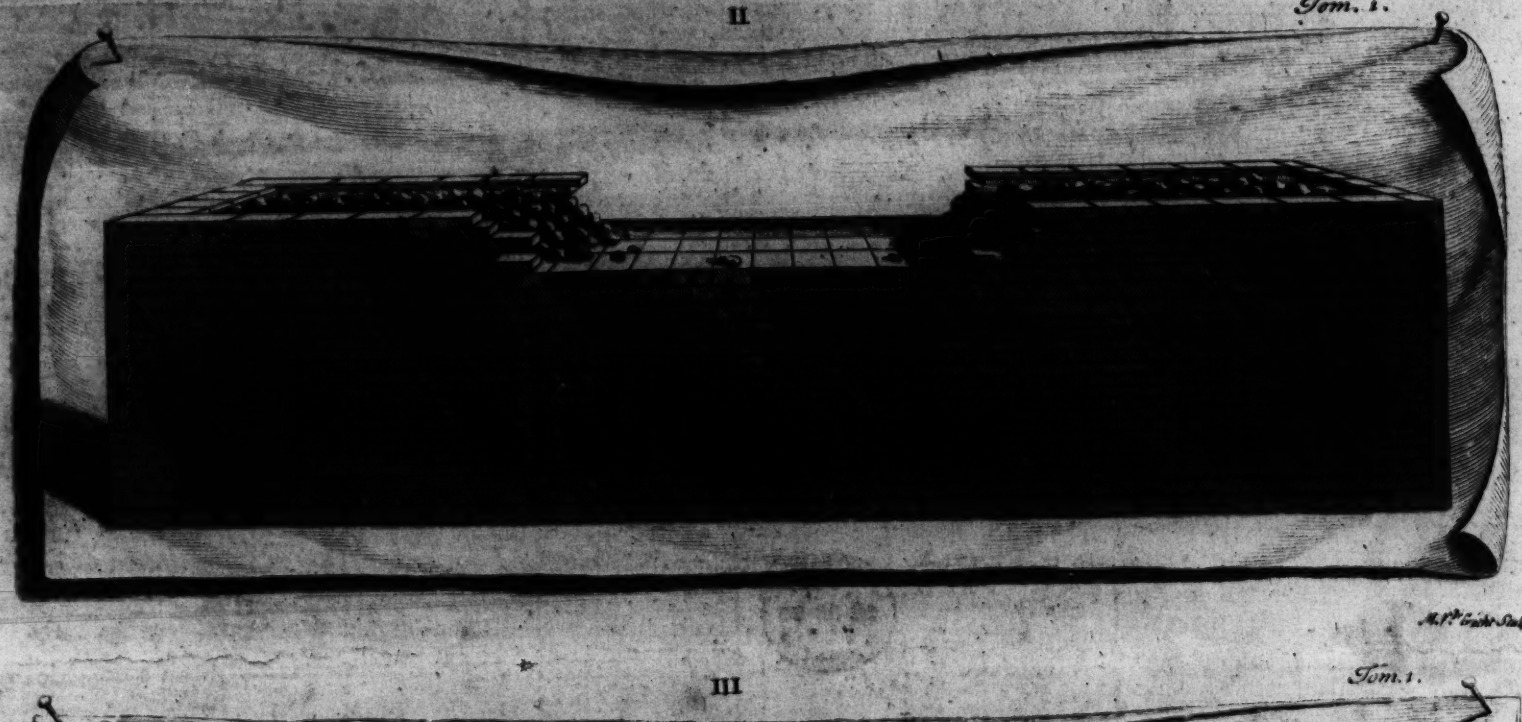
Tom. 1.



M.P.^de Cruche Sculp.

II

Tom. 1.



M.P.^de Cruche Sculp.

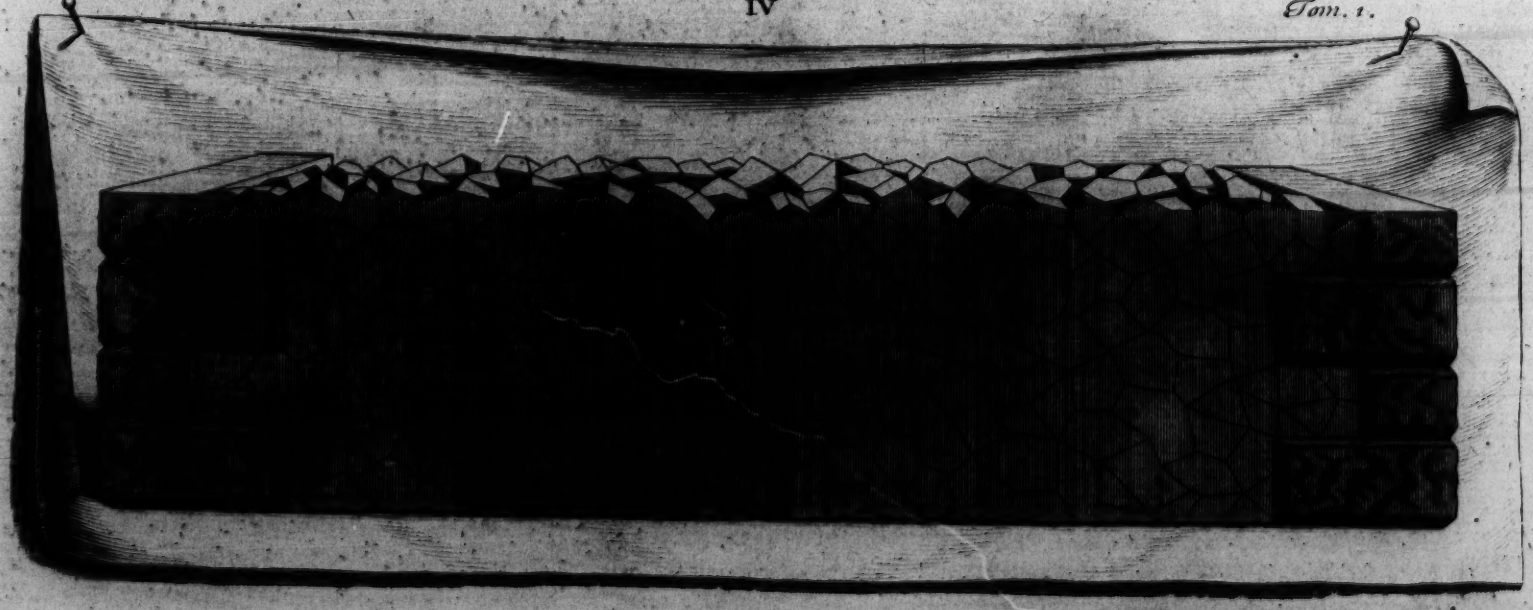
III

Tom. 1.

M.P.^de Cruche Sculp.

IV

Tom. 1.

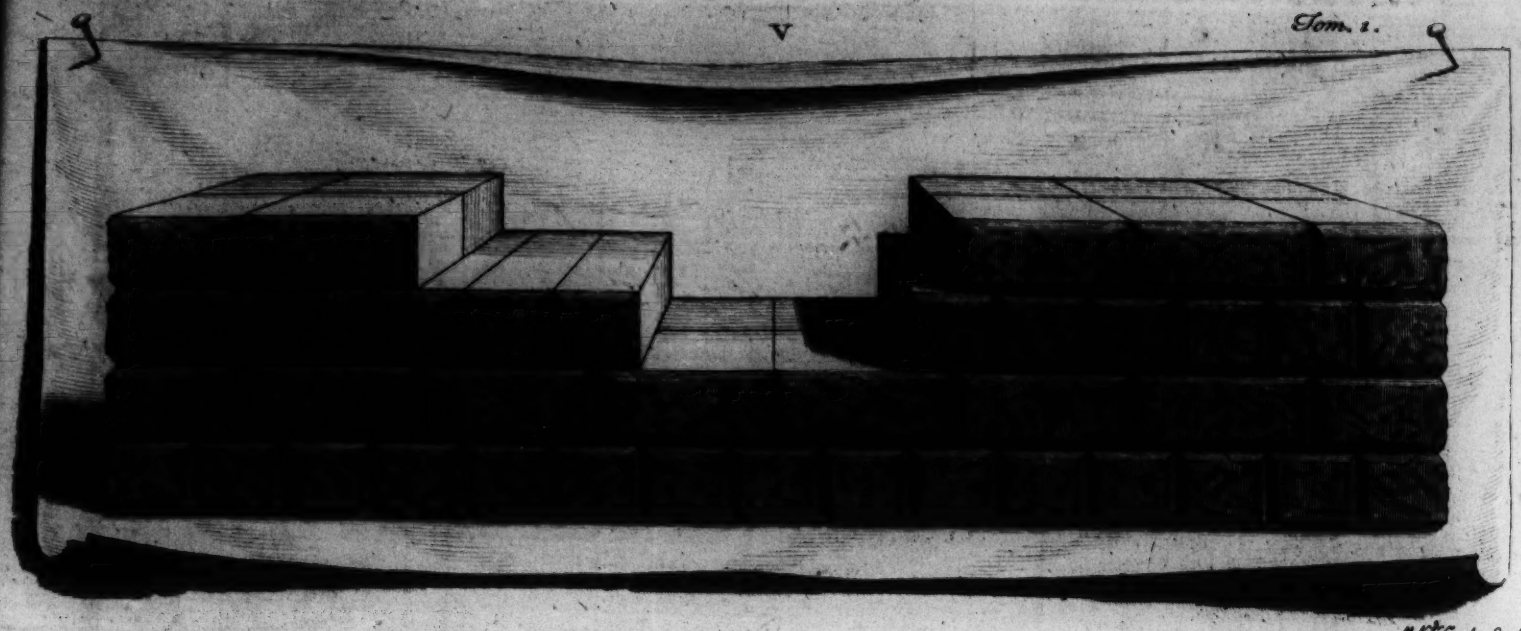


M.P.^de Cruche Sculp.

BRITISH
22 OC 73
MUSEUM

V

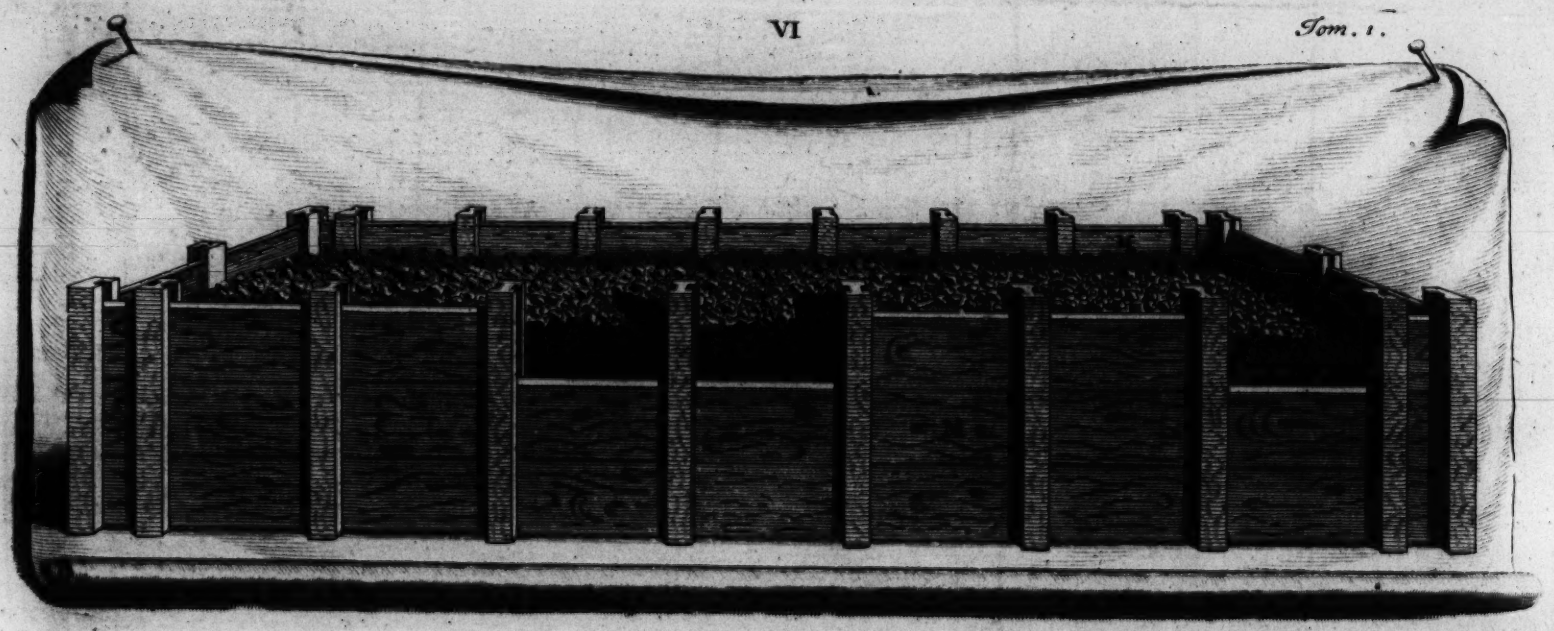
Tom. 1.



M.l.e Gucht Sculp.

VI

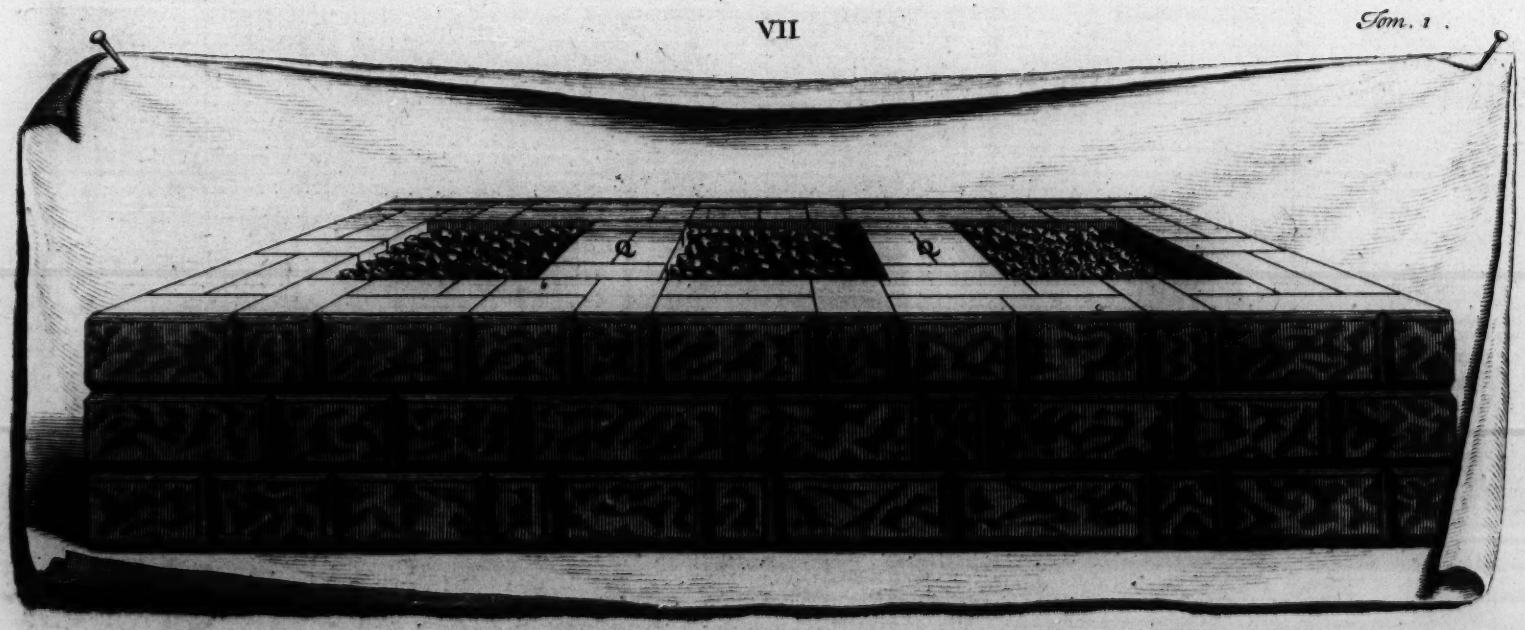
Tom. 1.



M.l.e Gucht Sculp.

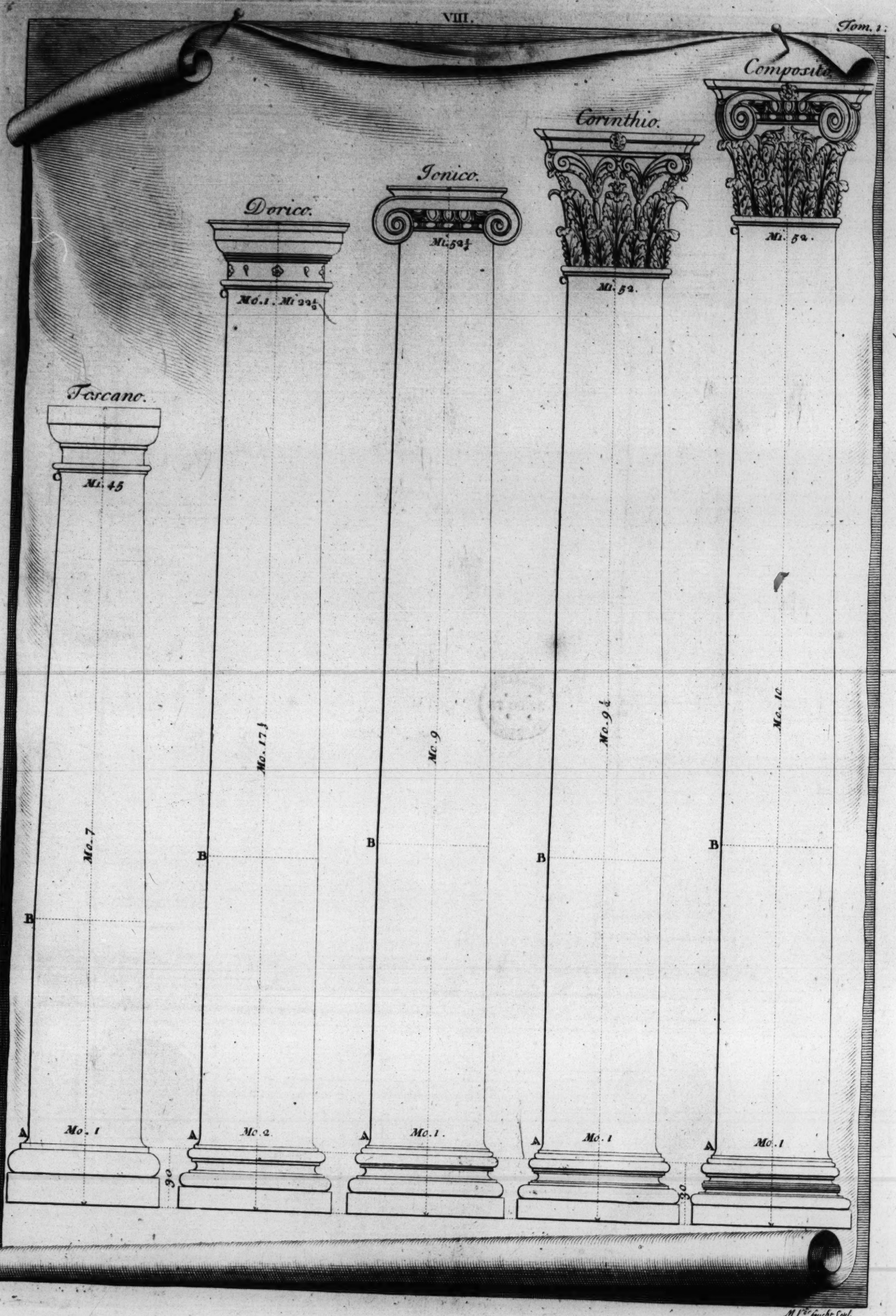
VII

Tom. 1.

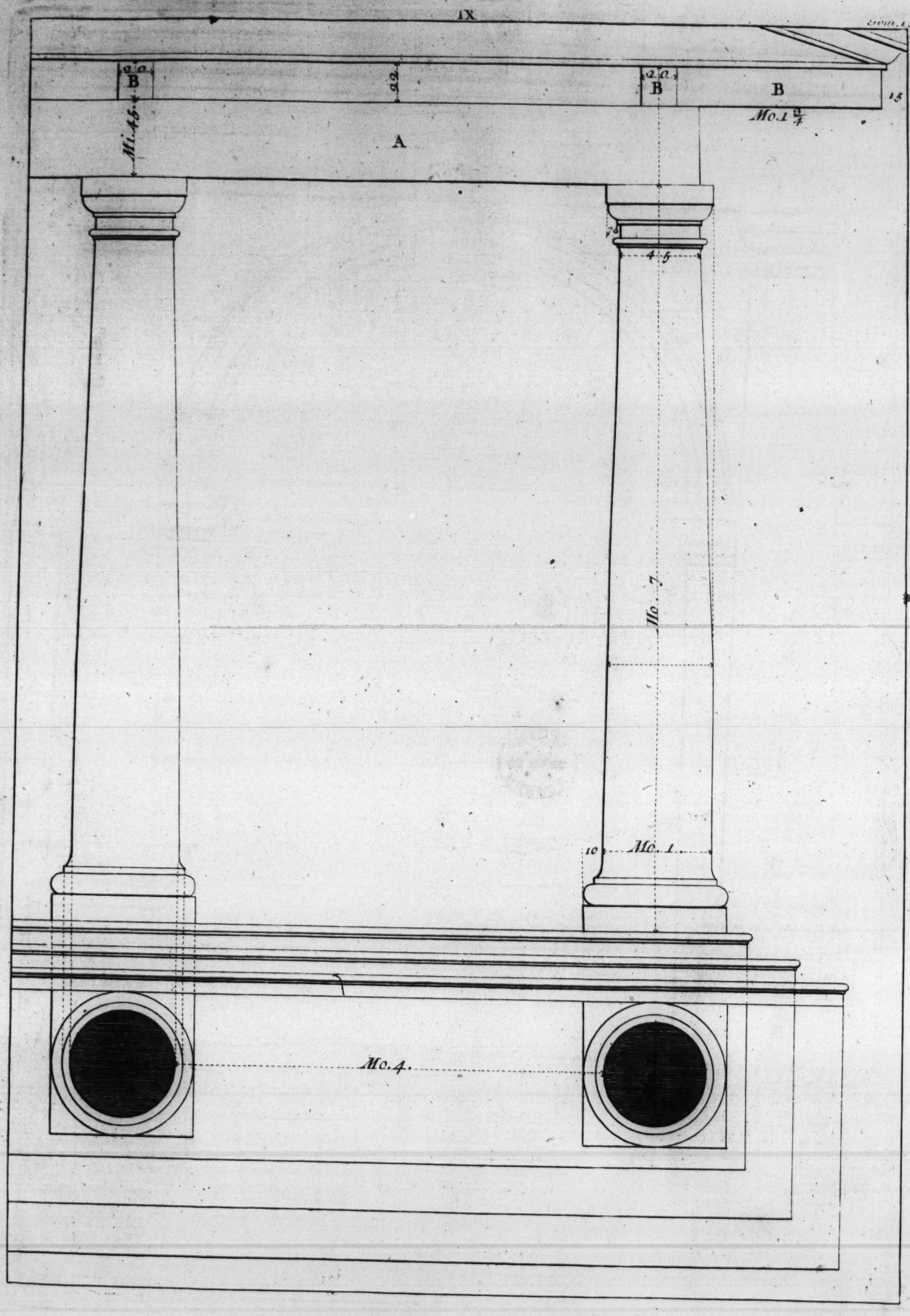


M.l.e Gucht Sculp.

BRITISH
22 OC 75
MUSEUM


Toscano.
Mi. 45
Dorico.
Mó. 1. Mi 22½
Ionico.
Mi. 52½
Corinthio.
Mi. 52.
Composito.
Mi. 52.
Mo. 7
Mo. 17½
Mo. 9
Mo. 9½
Mo. 10
B
A
Mo. 1
Mo. 2
Mo. 1.
Mo. 1
Mo. 1
30
30
M.l.v.d. Gucht. Sculp.

PHILLIPS
22 OC 25
MUSEUM


IX
B
B
B
A
Mo. 4.
Mo. 7
Mo. 1
Mo. 4.

BRITISH
23 OCT 25
MUSEUM

Tom. 1.

Mo. 1 Mi. 42.

35

7

A

16

Mo. 7.

Mo. 7. Mi. 25.

B

10

26

Mo. 1.

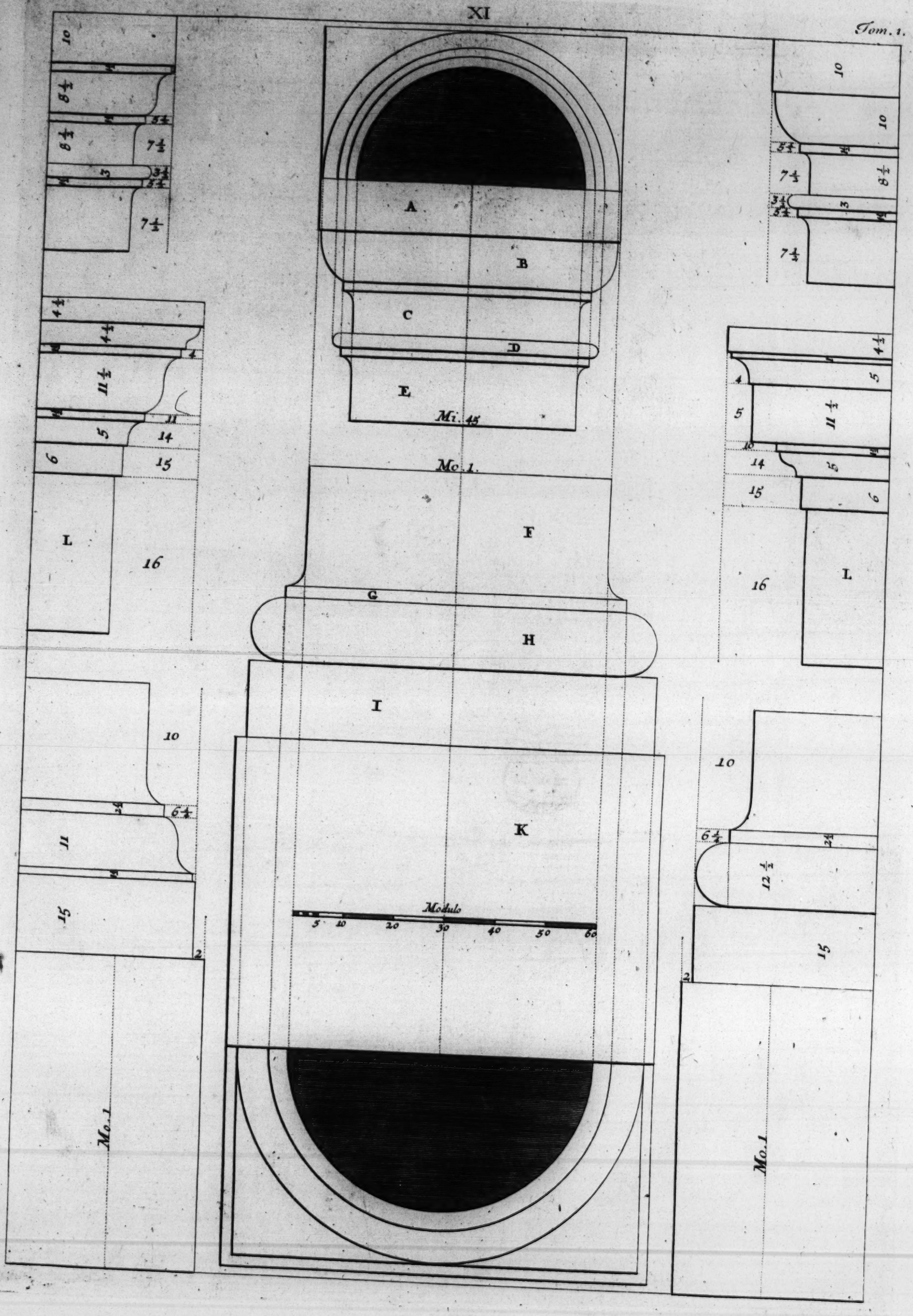
Mo. 4. Mi. 33.

Mo. 1.

Mo 1 Mi. 24

M. J. Gucht Sculp.

BRITISH
22 OCT 25
MUSEUM


A
B
C
D
E
Mi. 45
Mo. 1
F
G
H
I
K
L
Modulo
5 10 20 30 40 50 60

SMITHSONIAN
22 OCT 25
LIBRARIES

XII

A

B

C

D

E

F

G

H

I

K

L

M

M. 50

M. 1

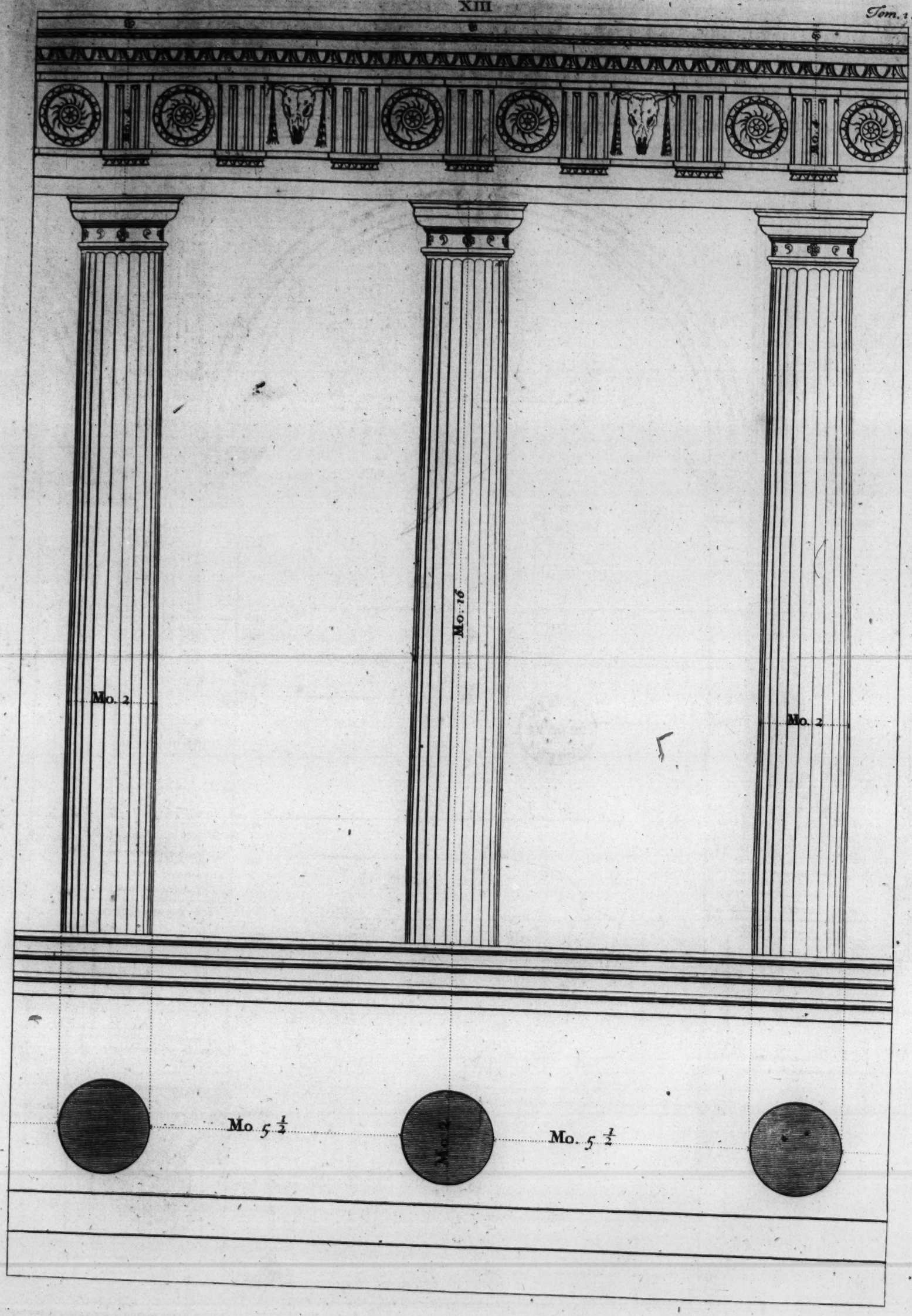
N

O

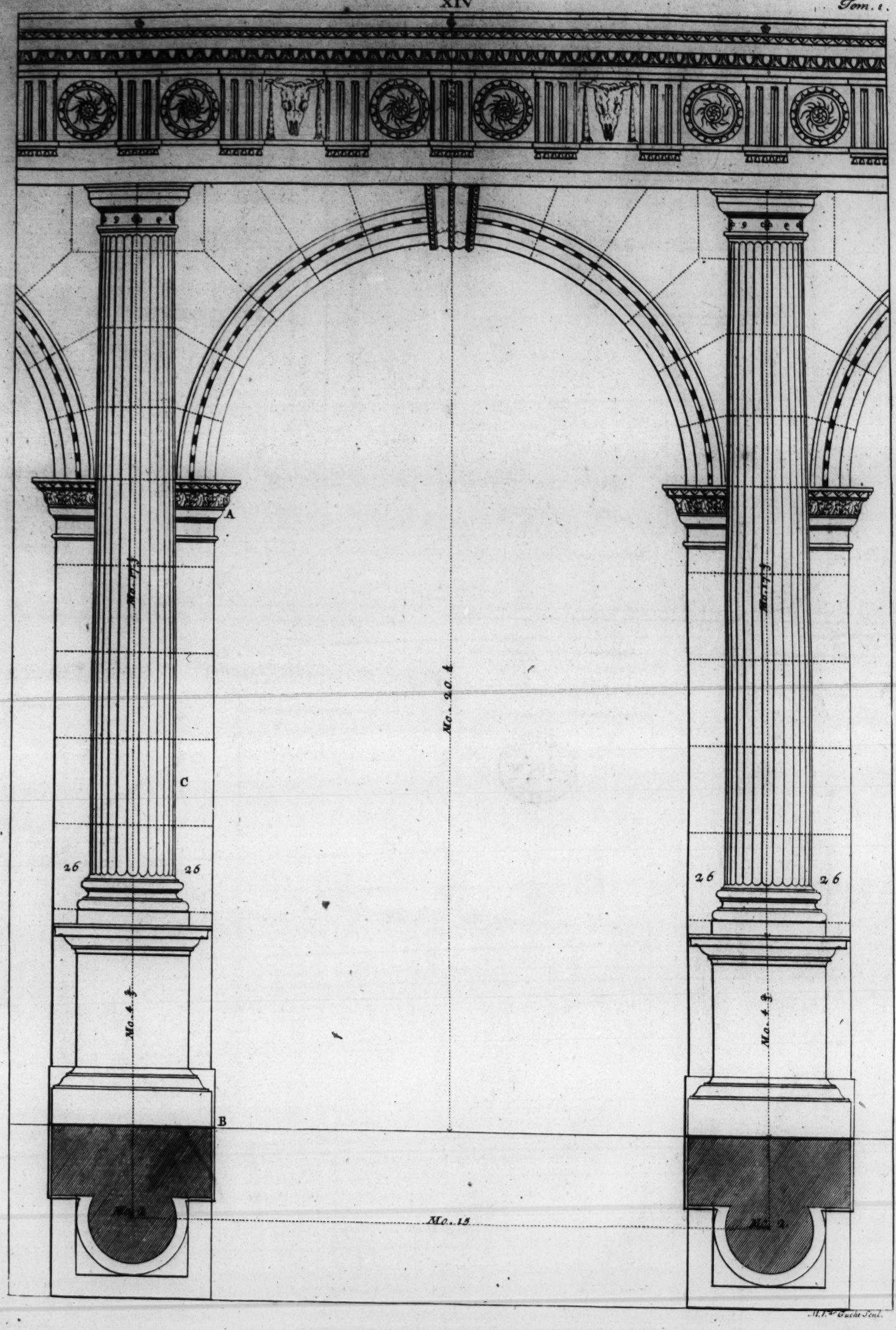
P

Q

BRITISH MUSEUM
22 OC 25

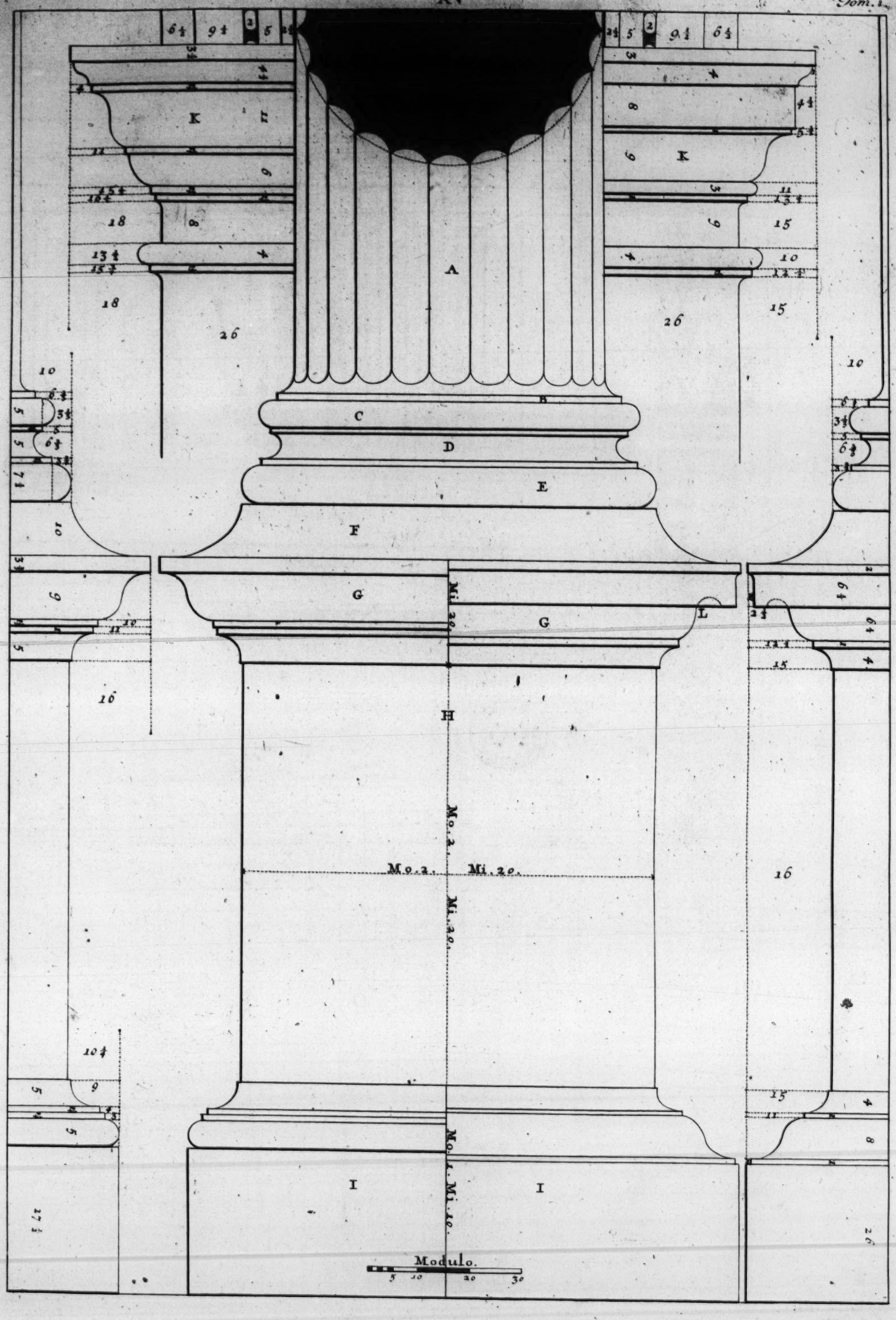

Mo. 2
Mo. 16
Mo. 2
Mo 5 ½
Mo 5
Mo. 5 ½

22 OCT 26

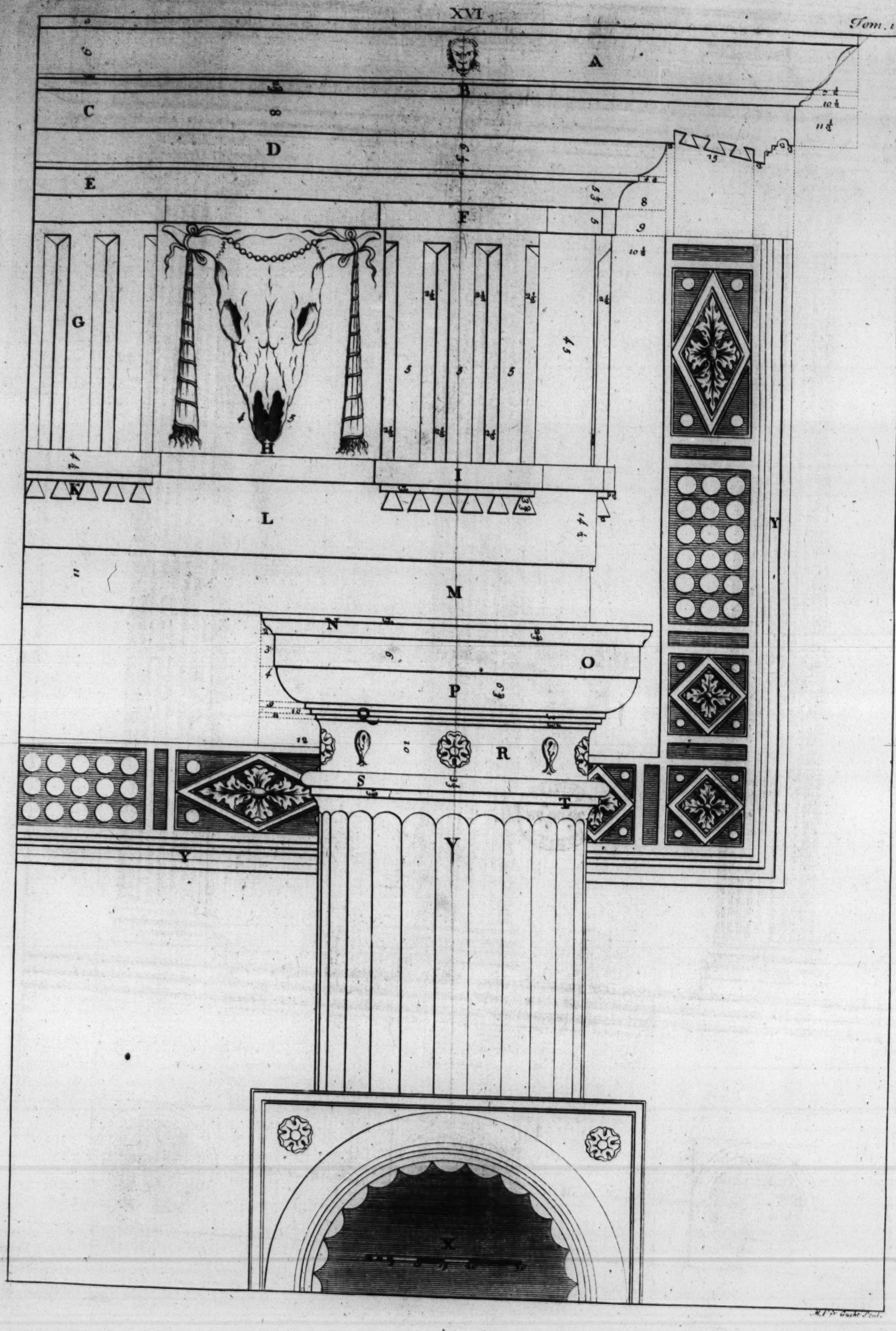


M. I.^a Gucht Scul.

LIBRARY
22 OCT 75
MUSEUM


A
C
D
E
F
G
G
H
I
I
K
K
L
Mi. 20.
Mo. 2.
Mo. 2.
Mi. 20.
Mo. 1. Mi. 10.
Modulo.
5 10 20 30

BIBLIOTECA
22 OCT 25
MUSEUM


A
B
C
D
E
F
G
H
I
K
L
M
N
O
P
Q
R
S
T
Y
X

BIBLIOTECA
22 OC 76

XVII

Sem. 1.

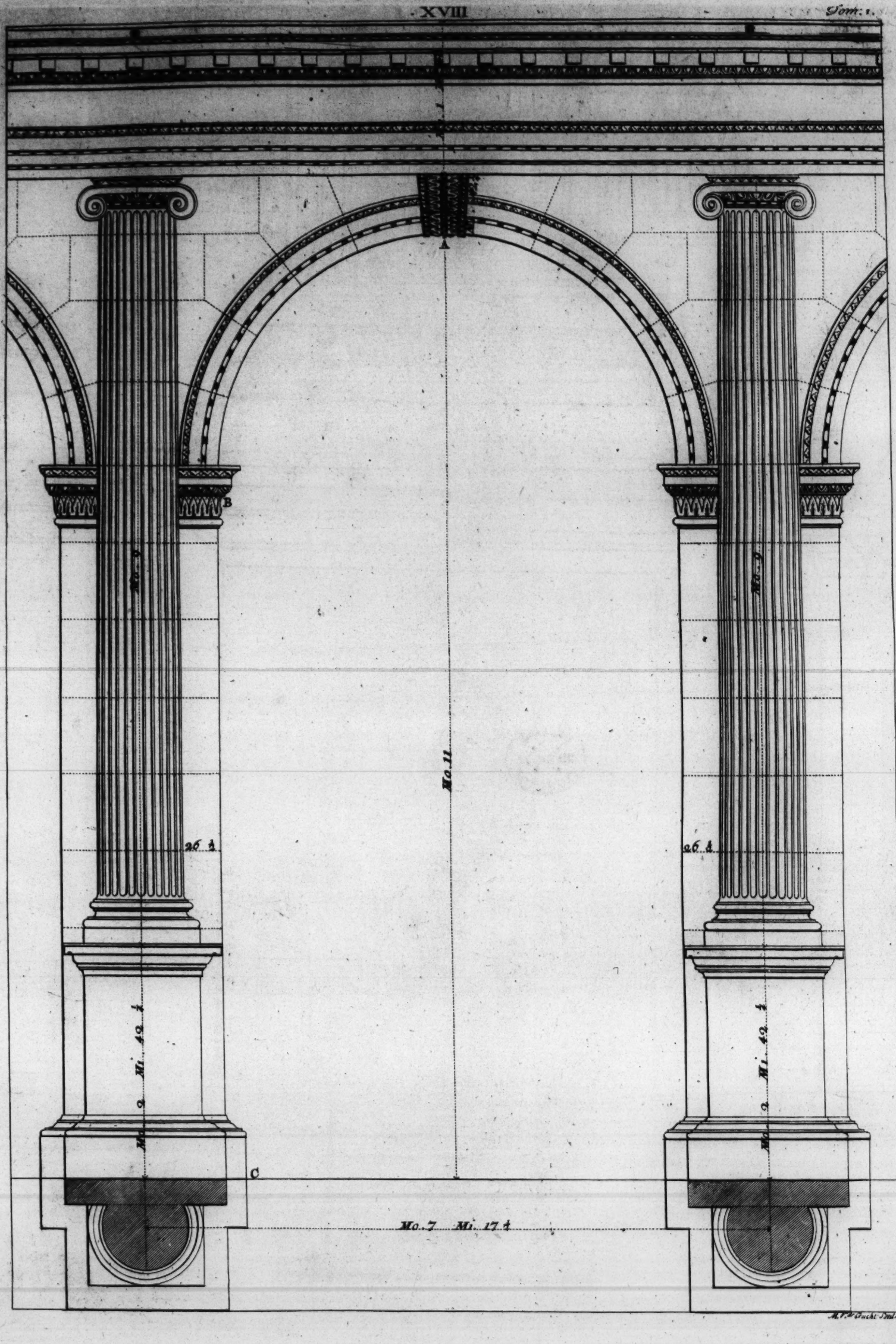
Mo. 2

Mo. 2. Mi. 18.

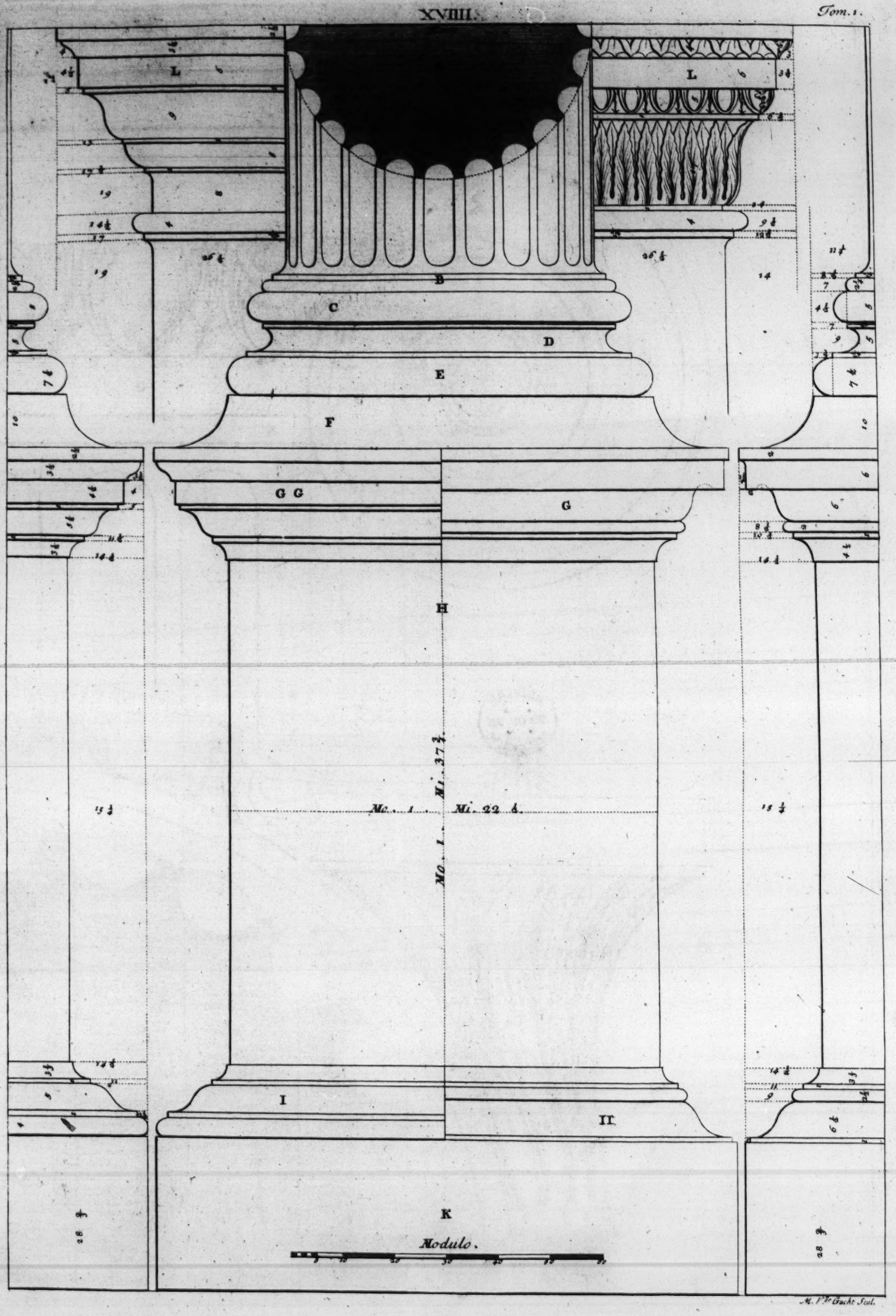
Mo. 2. Mi. 18.

A. Wolfaardt Sculp.

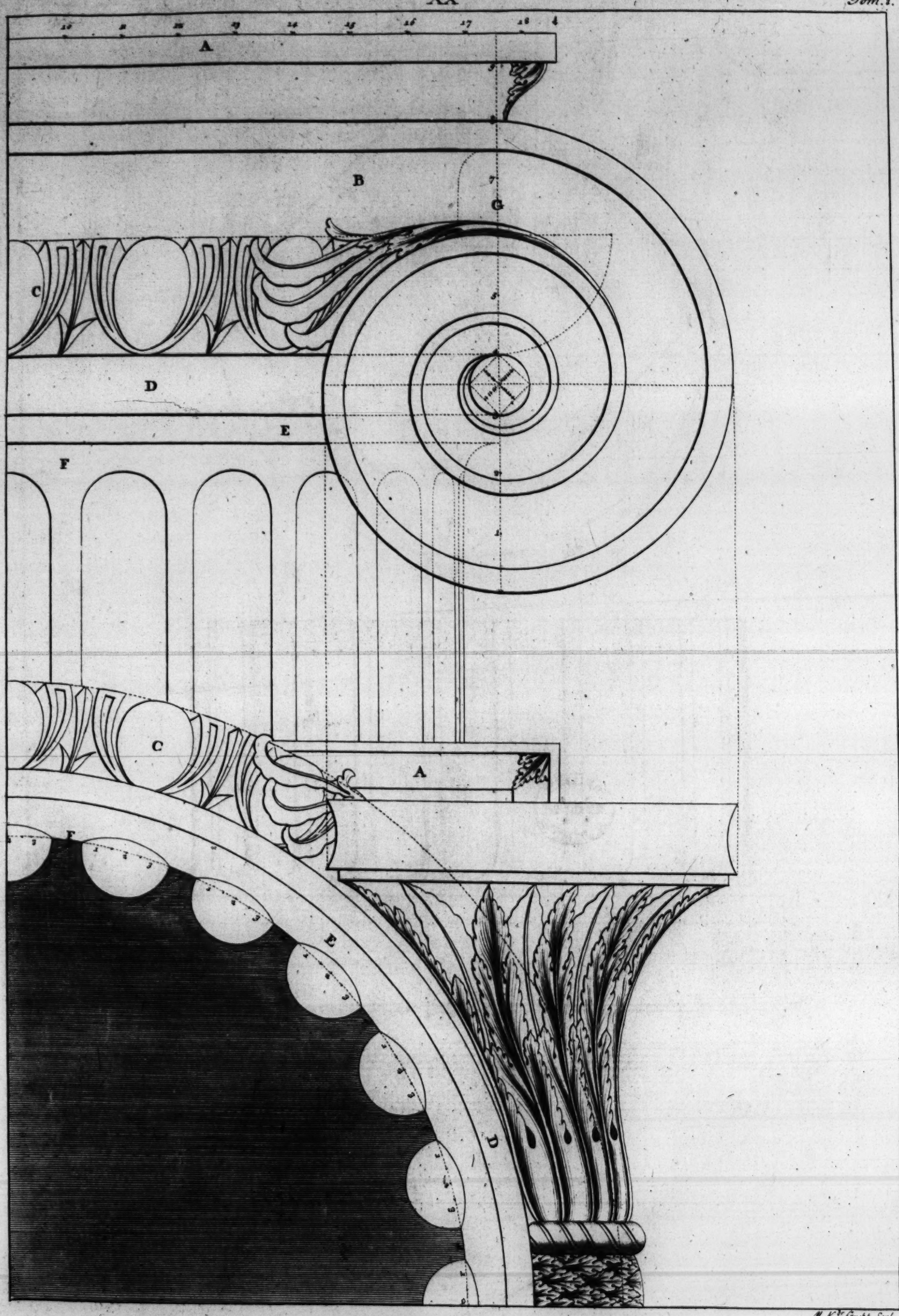
BRITISH
22 OCT 25
MUSEUM


B
C
Mo. 9
26 ½
2 Mi. 42 ½
Mo. 3
Mo. 11
Mo. 7 Mi. 17 ½

RECEIVED
22 OCT 76
MUSEUM

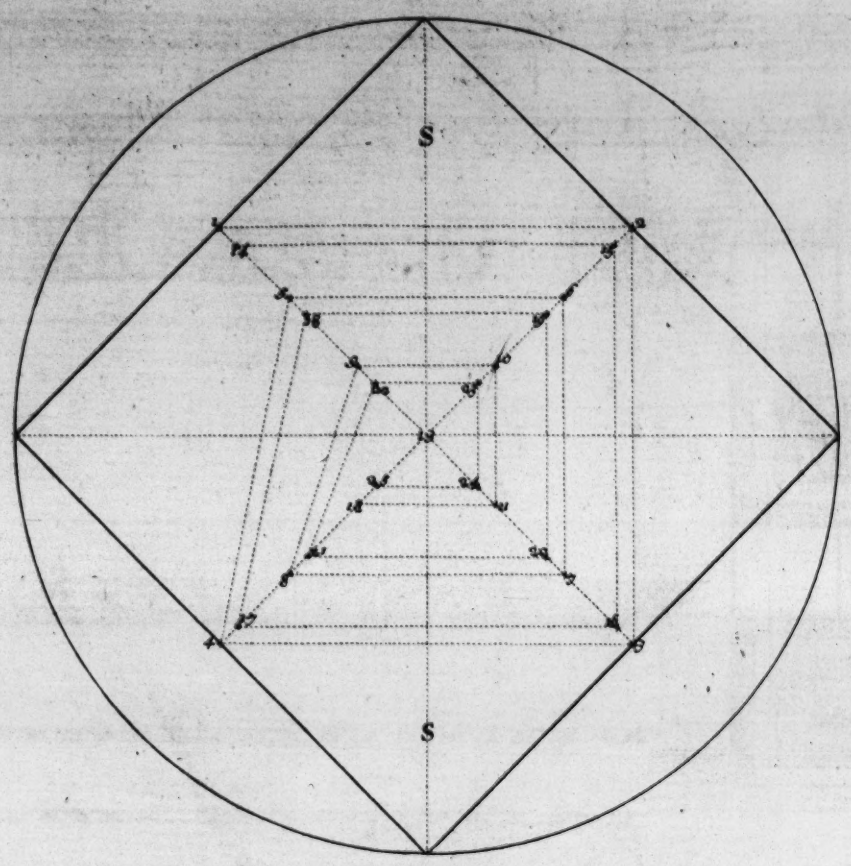


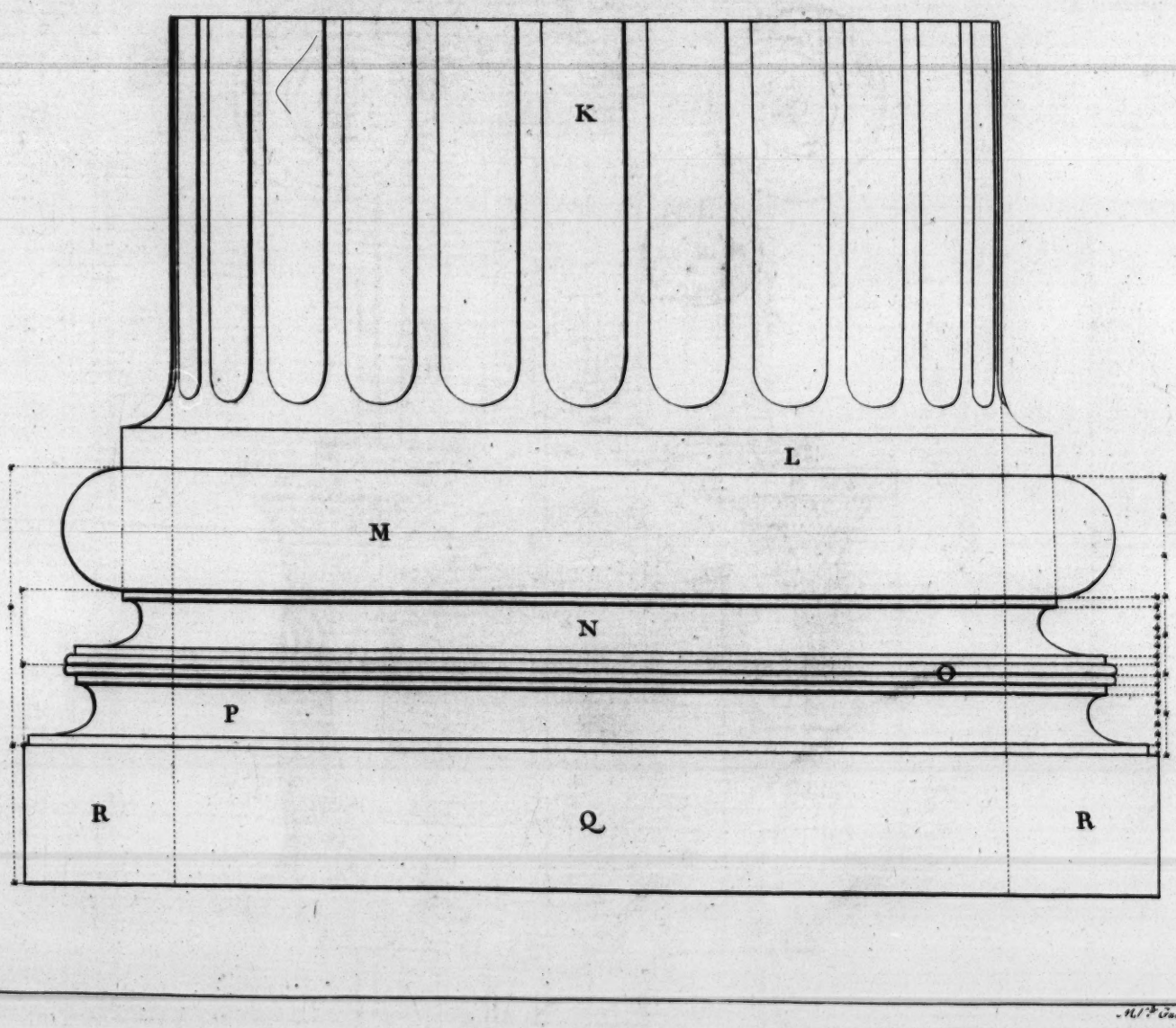
M. P.re Gaché Scul.



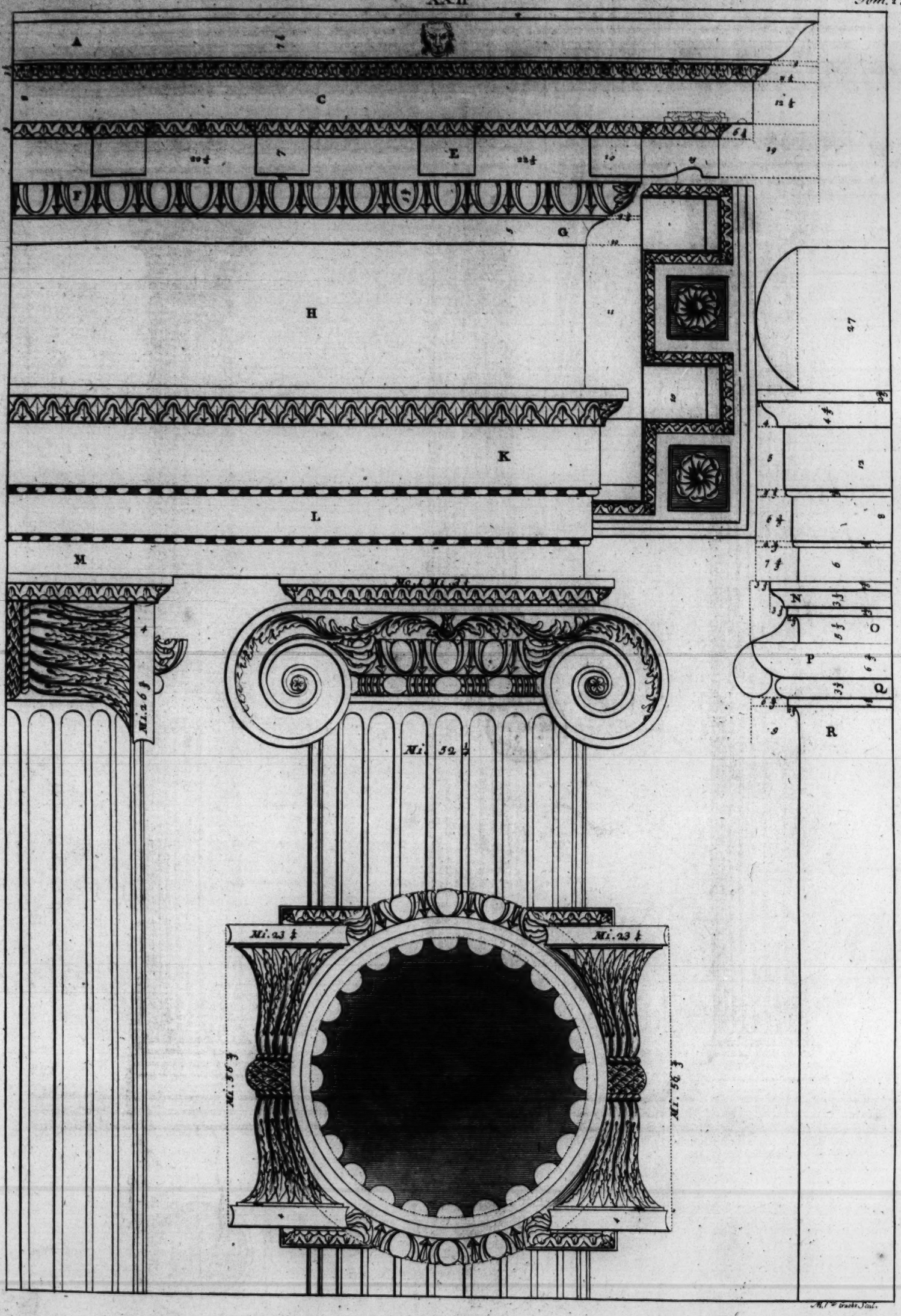
M. V.r Gucht Scul.

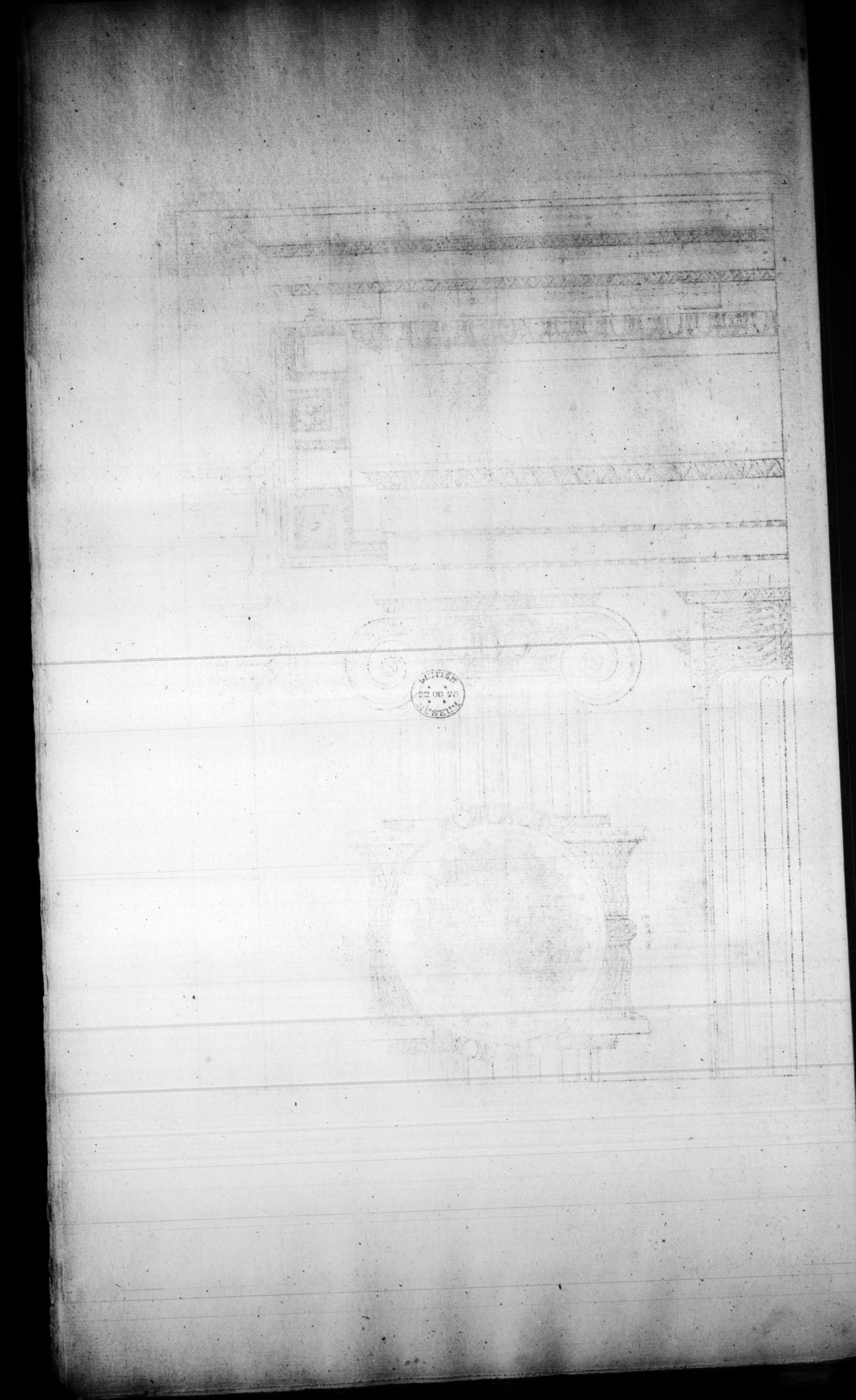
BERLIN
22 OCT 26
MUSEUM

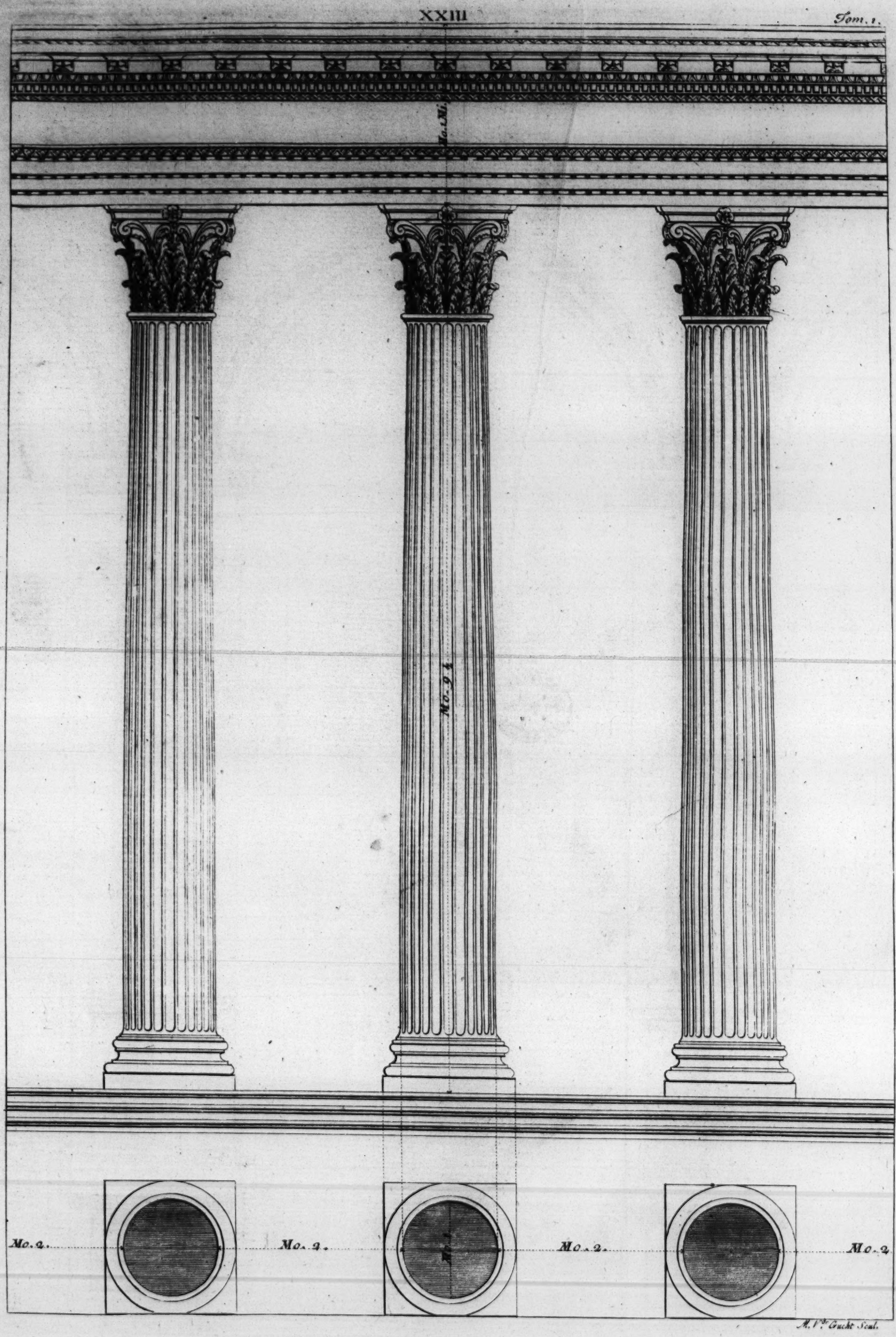




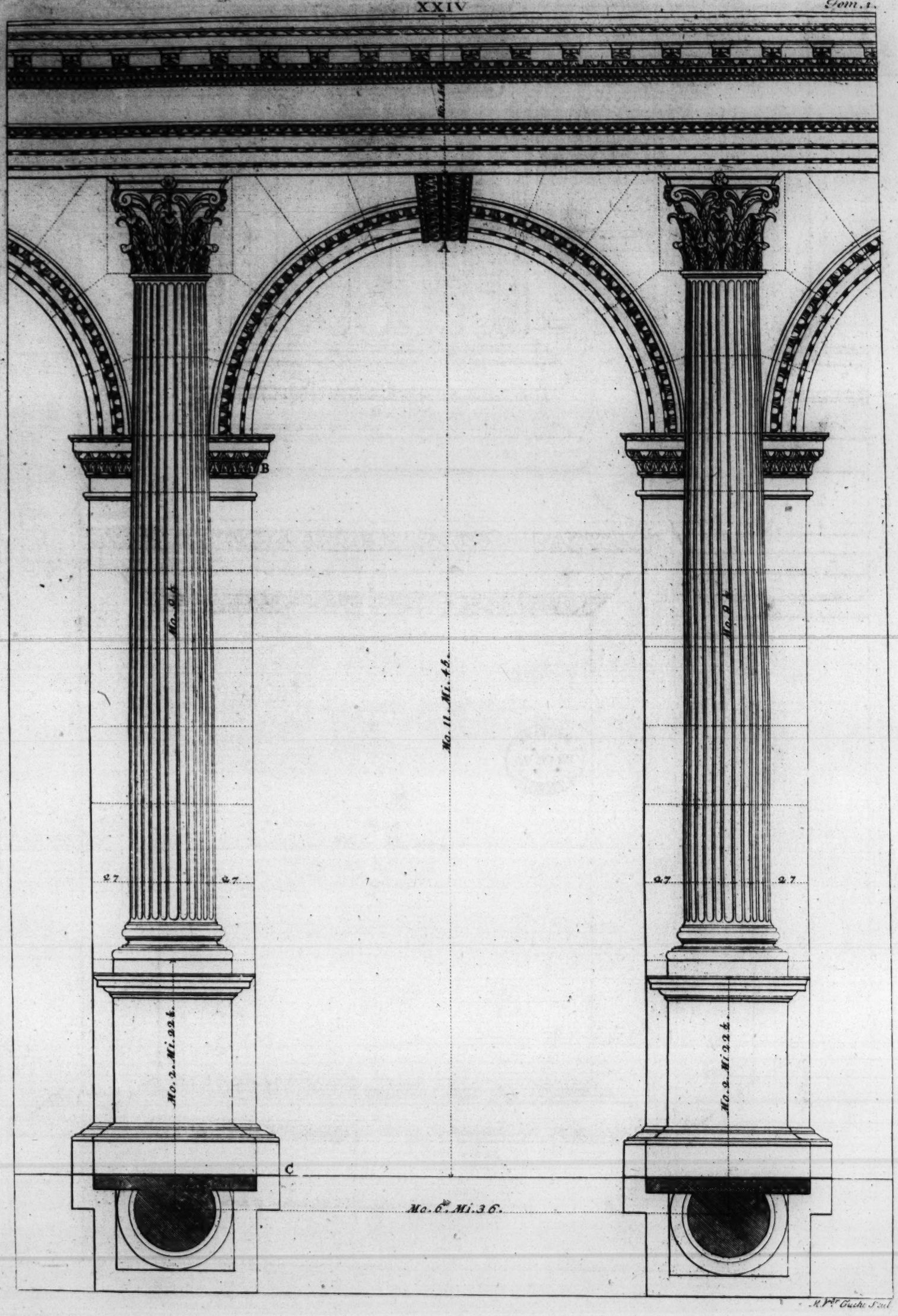
M.r P. Gaehr Scul.


A
C
E
F
G
H
K
L
M
N
O
P
Q
R
Mi. 26 ½
Mi. 32 ½
Mi. 23 ½
Mi. 23 ½
Mi. 37 ½
Mi. 25 ½


BRITISH
22 06 25
MUSEUM


No. 1.
No. 3.
No. 2.
No. 2.
No. 2.
No. 2.
M.l.e Gucht Scul.

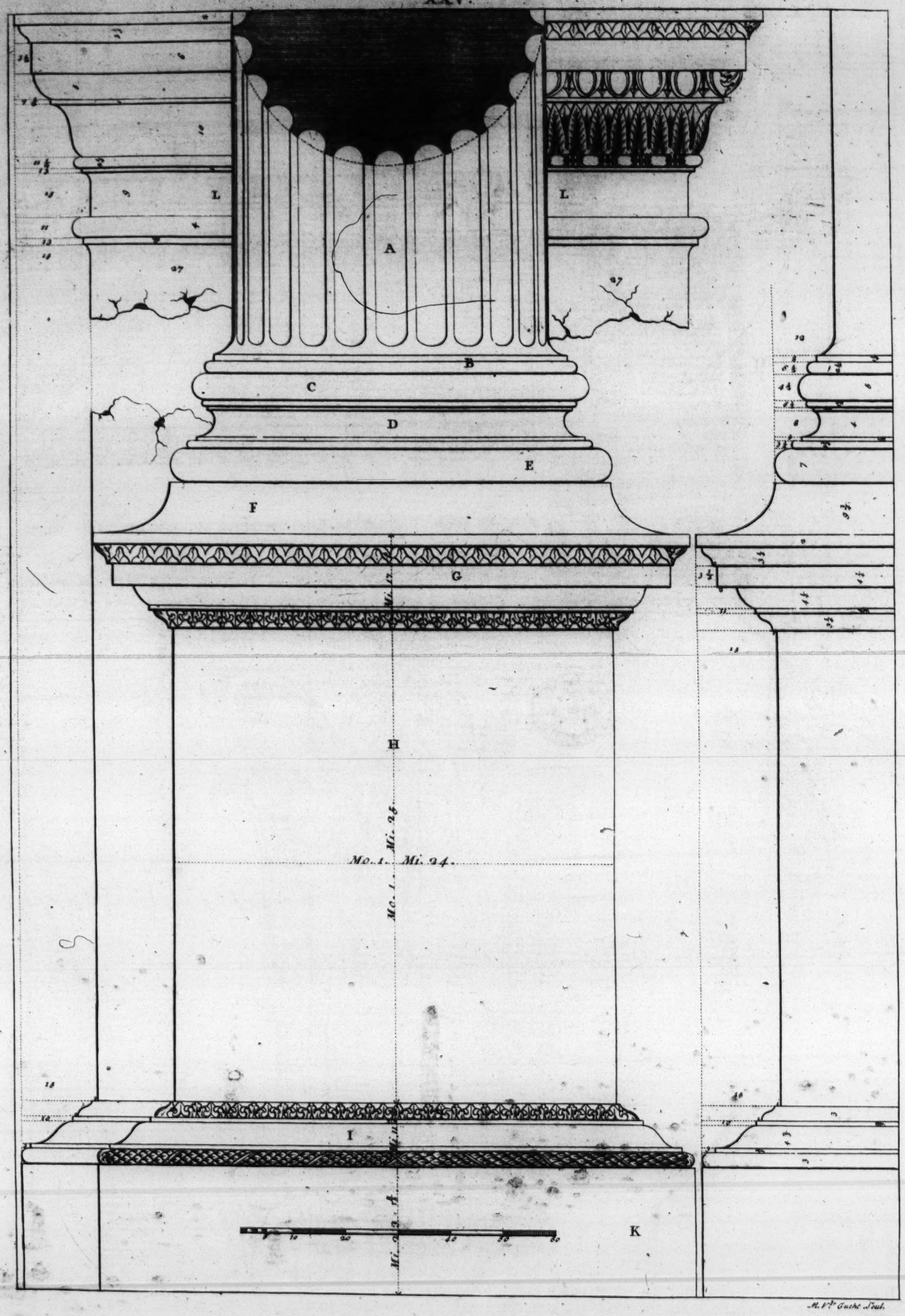
25 OCT 76



R. Pr. Gucht Sculp.

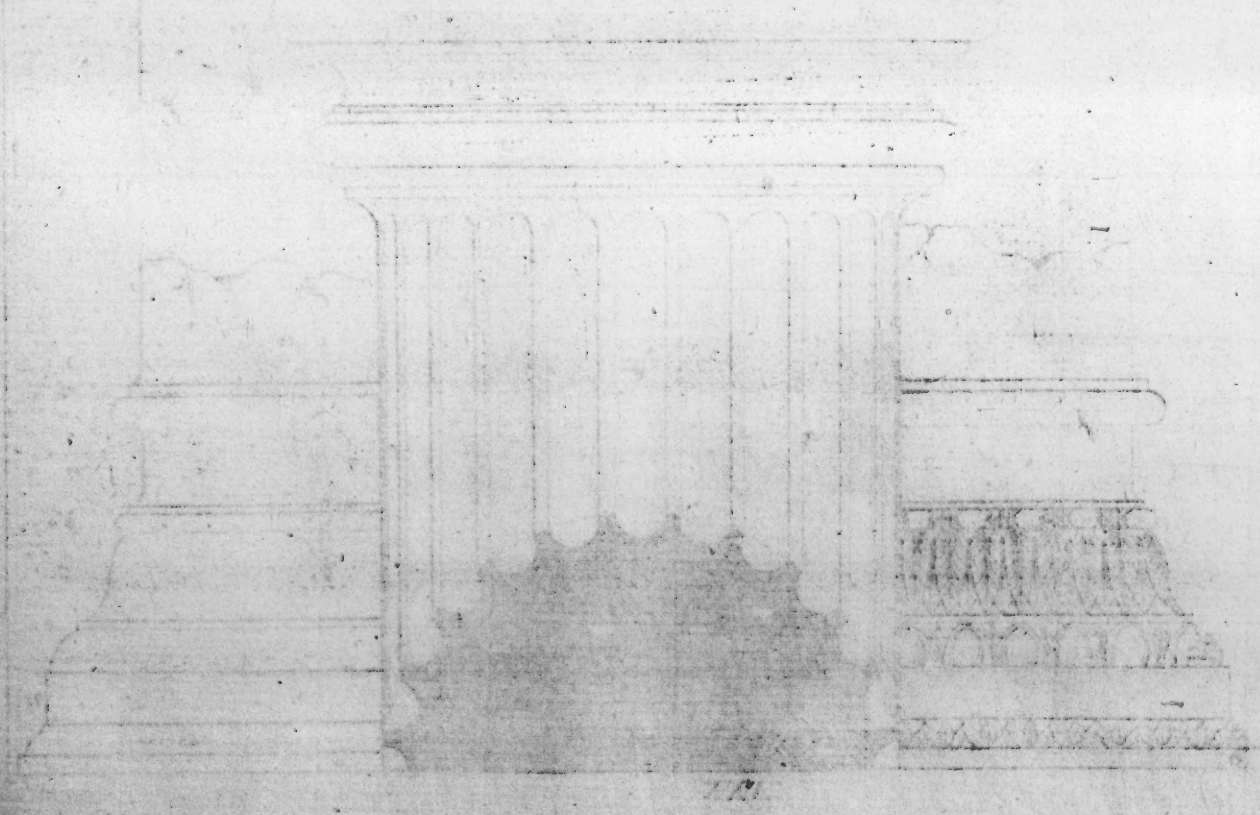
BIBLIOTECA
22 OCT 74

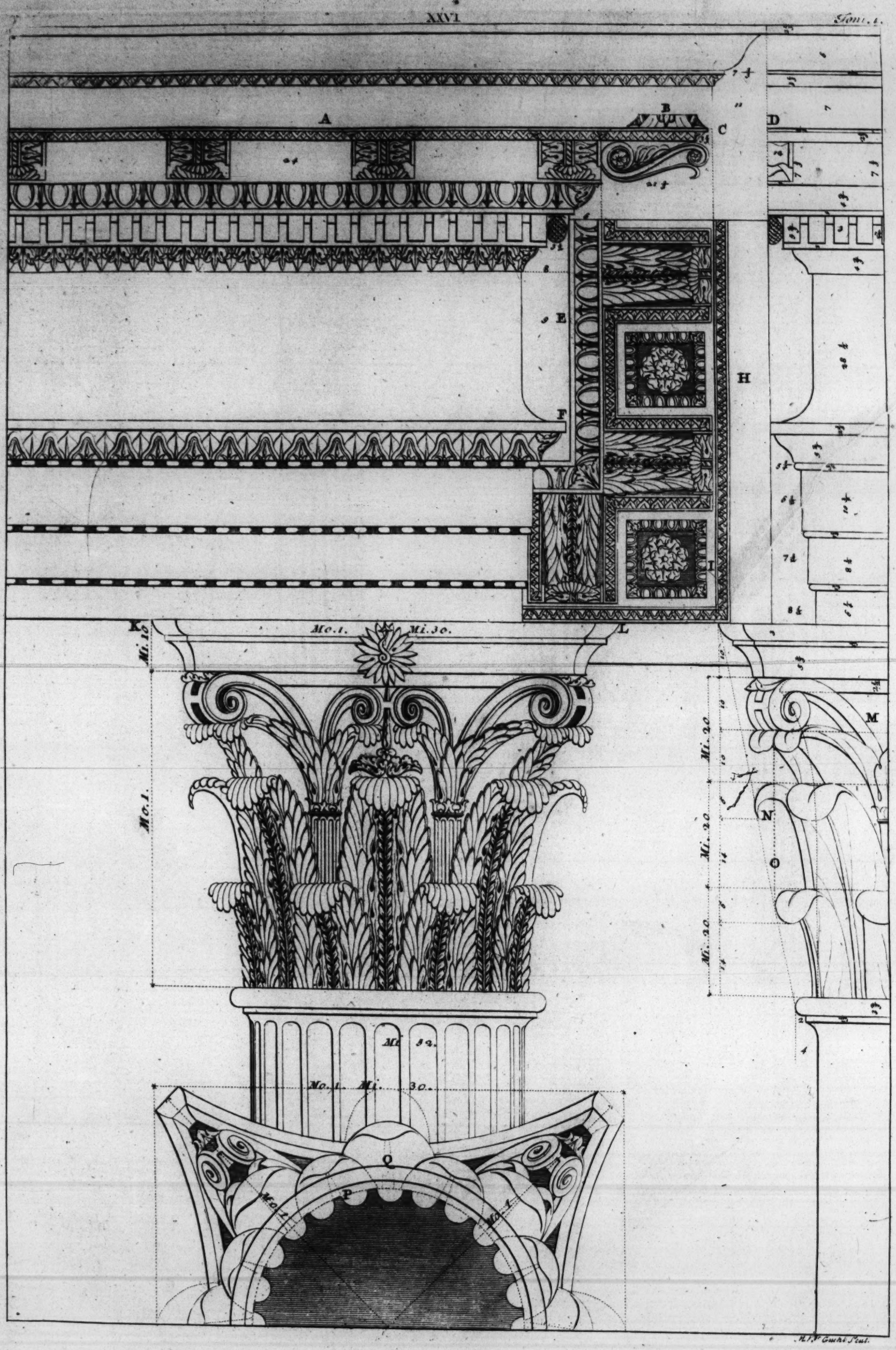
XXV.



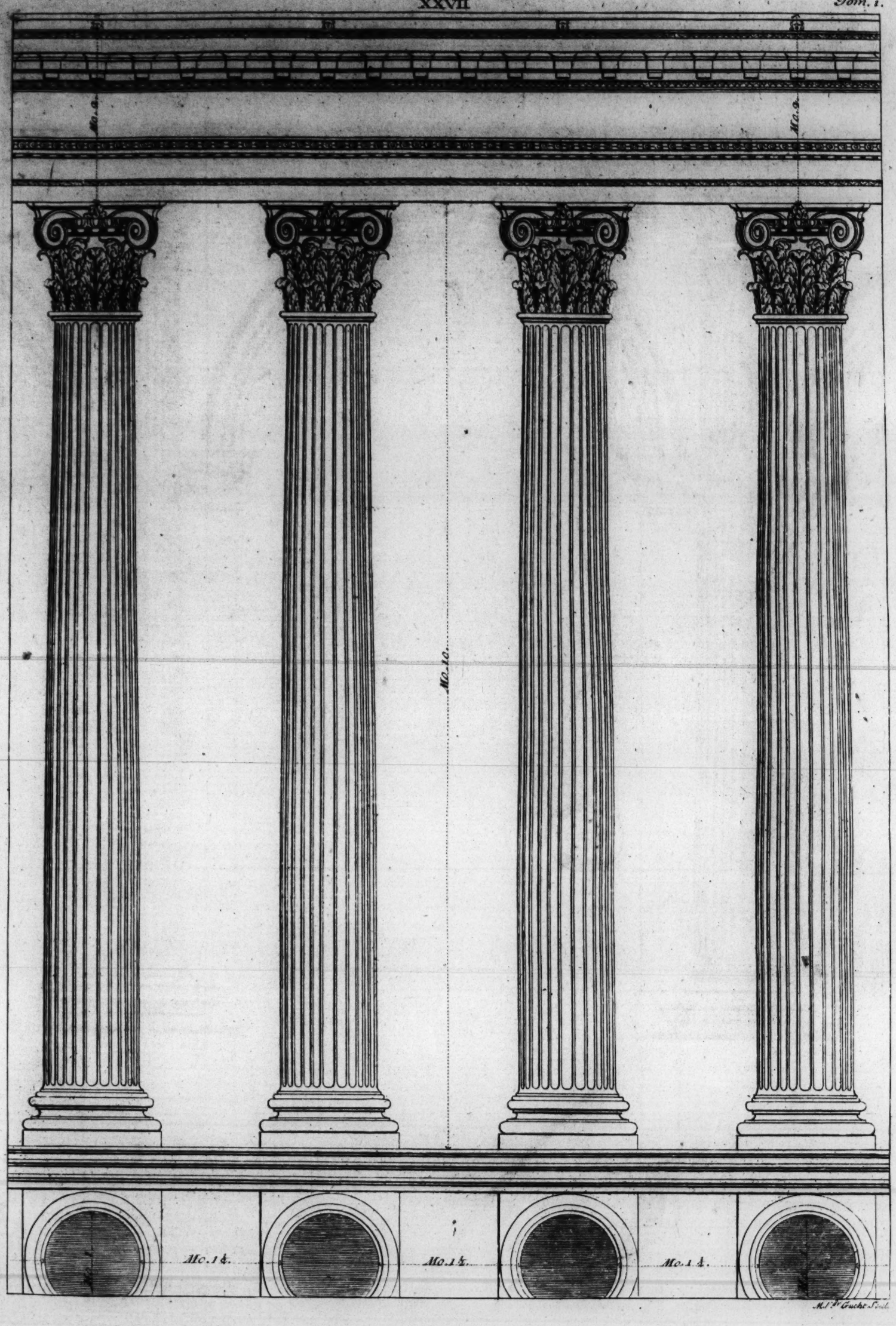
M. Ve Gucht Sculp.

PUBLISHED
22 OCT 78
CONDÉ NAST



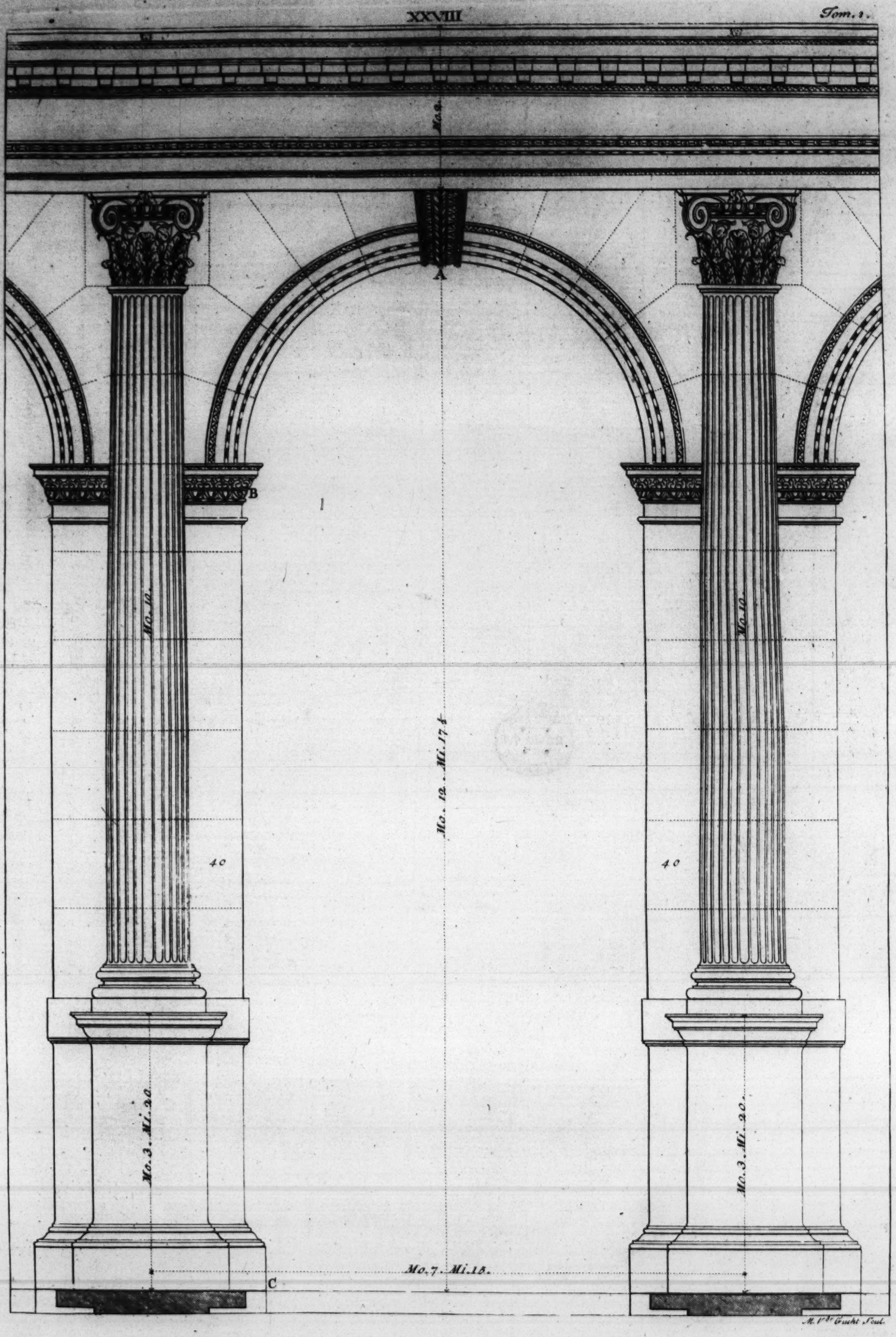

A
B
C
D
E
F
H
I
K
L
M
N
O
P
Q
Mo. 1.
Mi. 30.
Mi. 15
Mo. 1.
Mi. 30
Mi. 30
Mi. 30
Mi. 22.
Mo. 1. Mi. 30.
Mo. 1
Mi. 1
H. P. Gwin. Sculp.

BRITISH
22 OC 25
MUSEUM



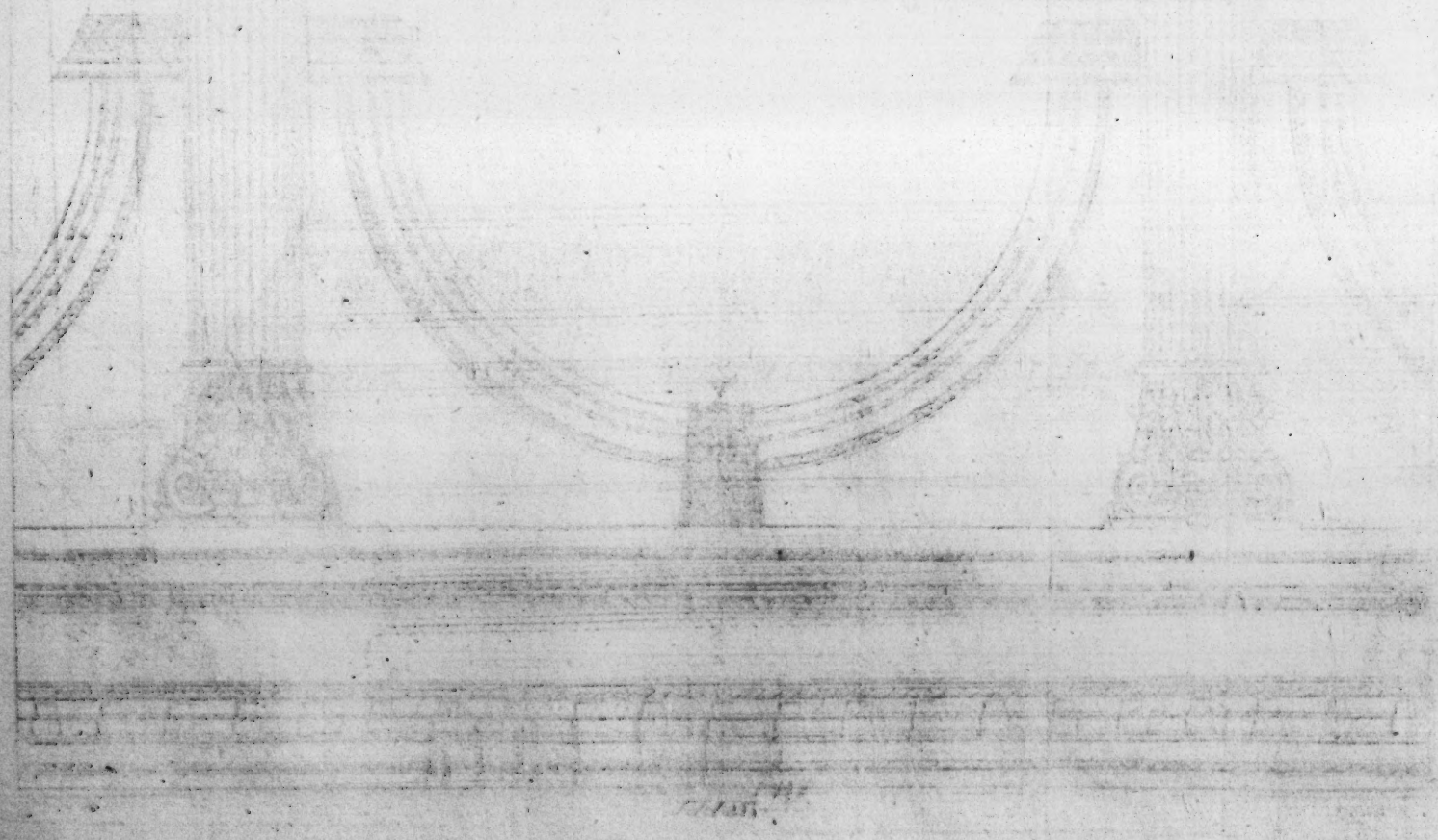
M. J. Fr. Gucht. Sculp.

22 OCT 75

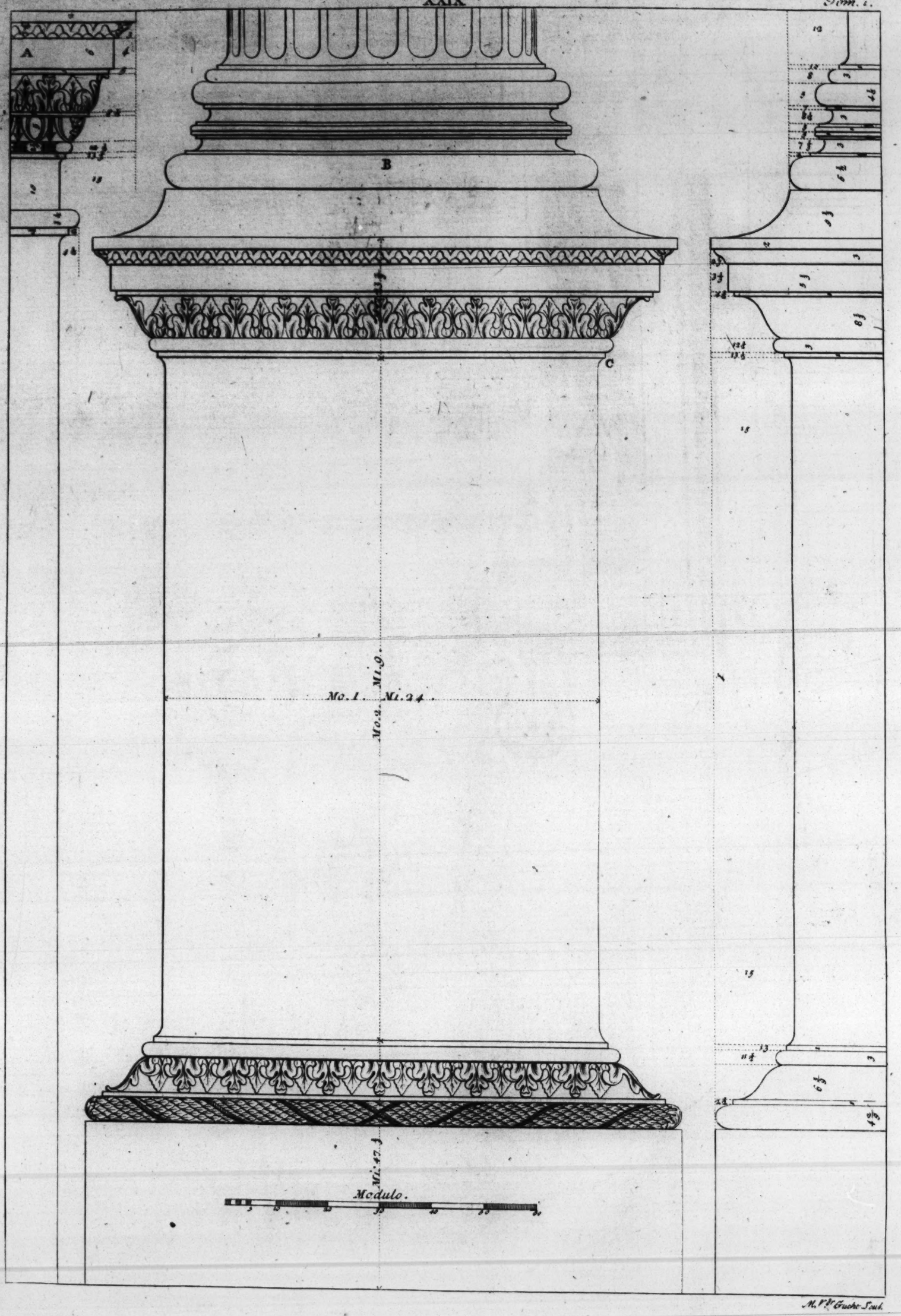


M. 1er Gucht Sculp.

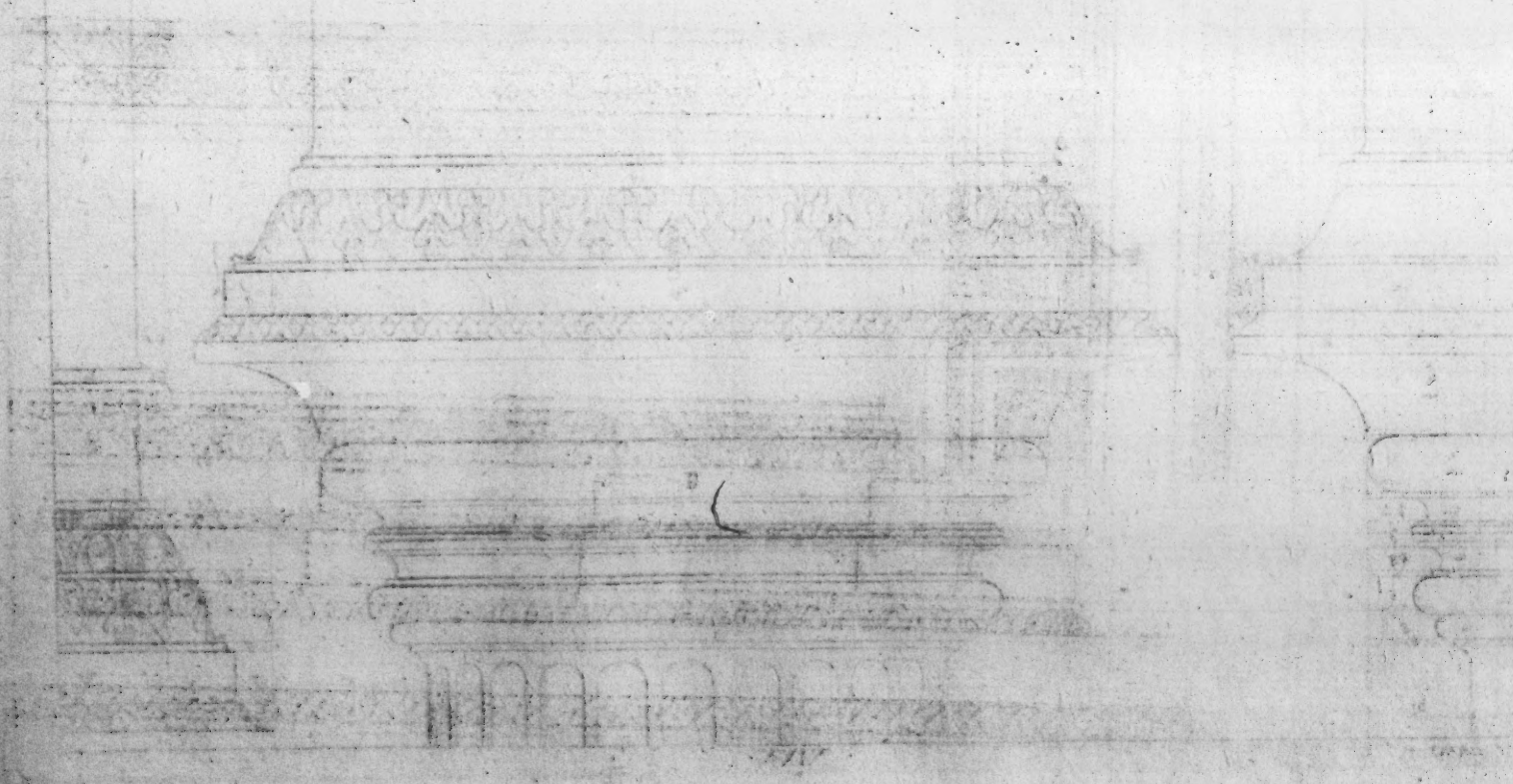
BRITISH MUSEUM
22 OCT 76

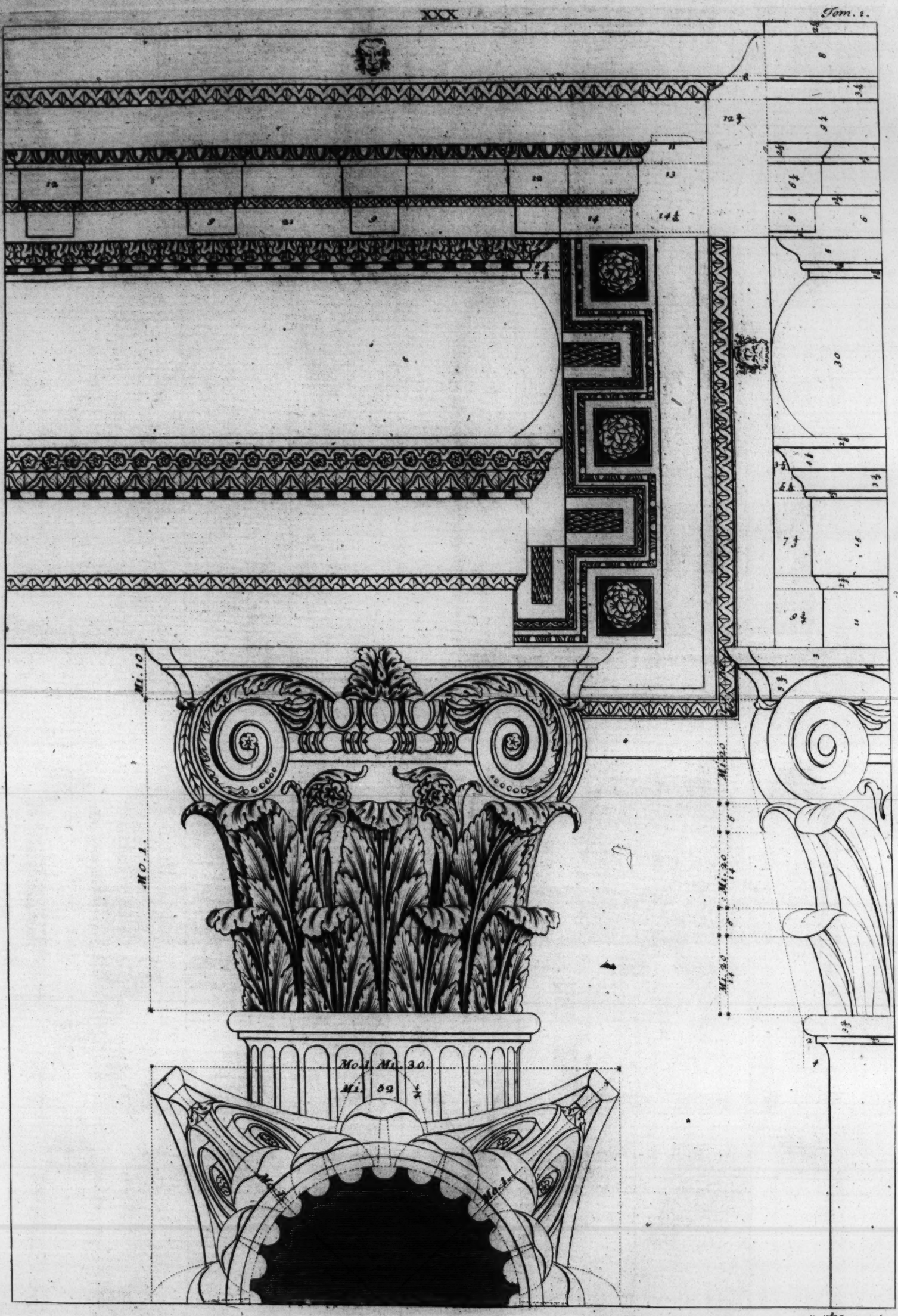


Tom. I.



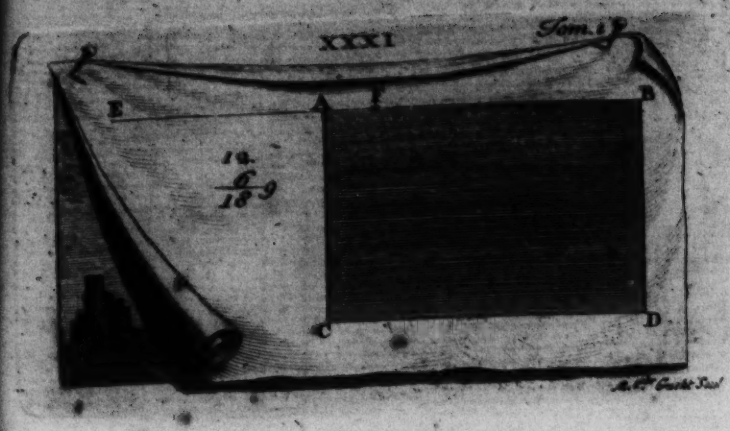
22 OCT 76



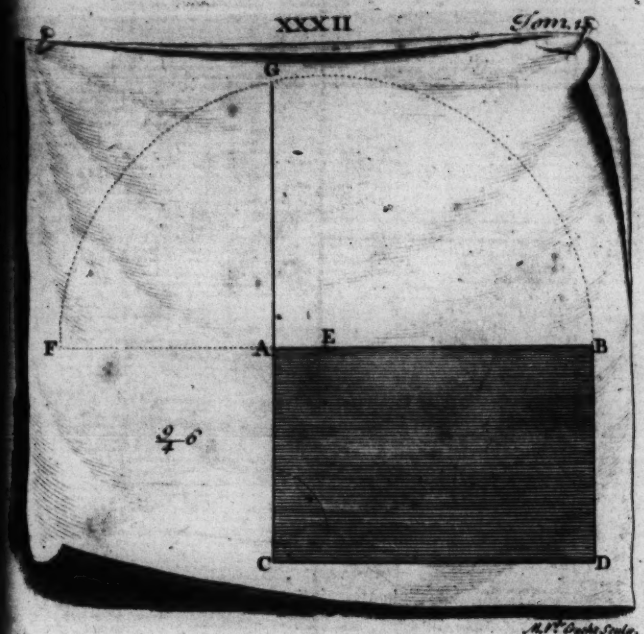

Mi. 10
Mo. 1.
Mo. 1. Mi. 30.
Mi. 32 ½
N. 1.er Guicht Scul.

22 OCT 75

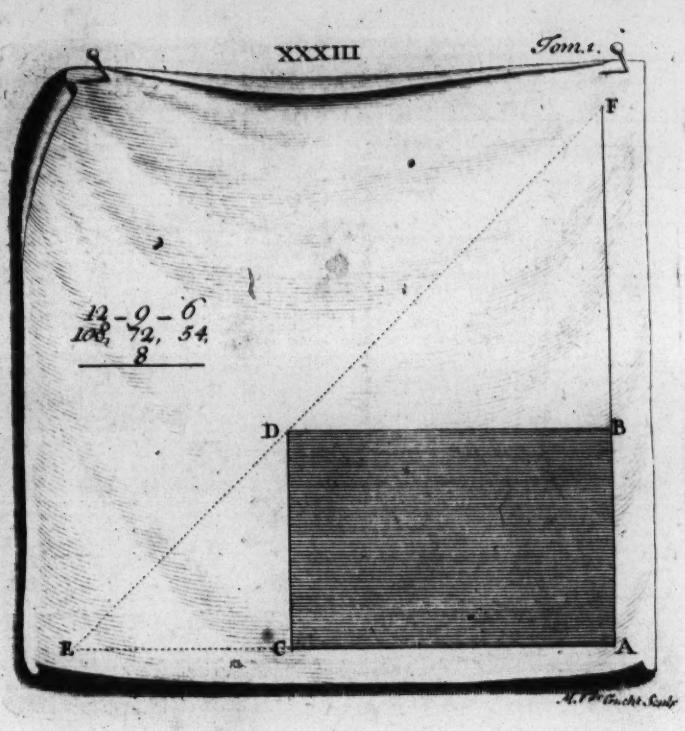
XXXI Tom. 1.



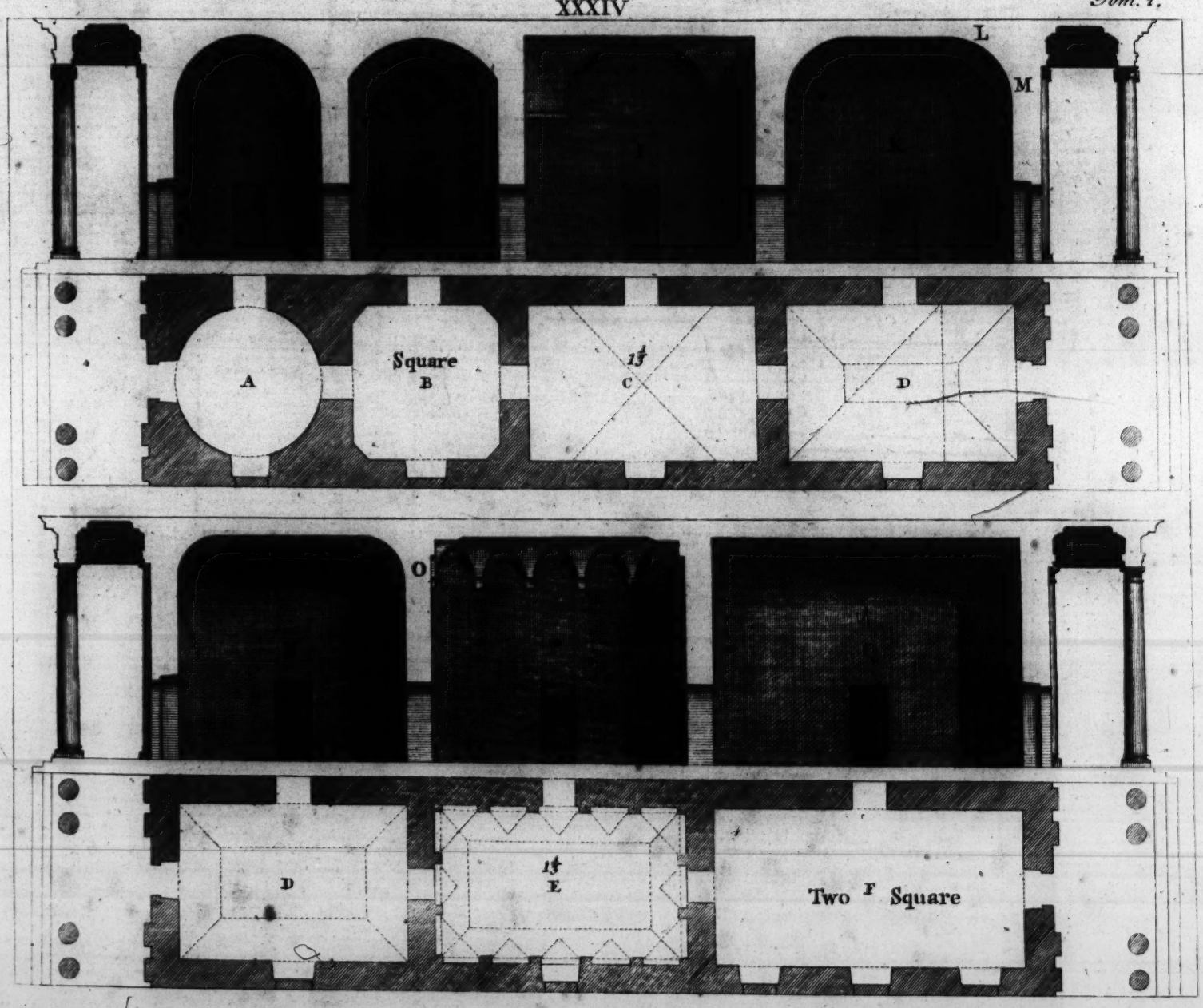
XXXII Tom. 1.

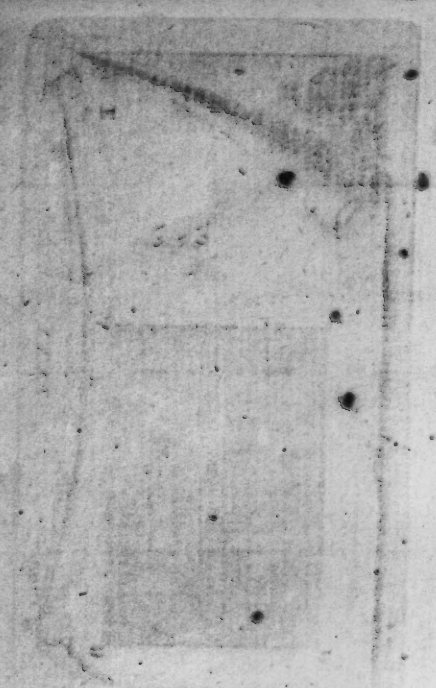


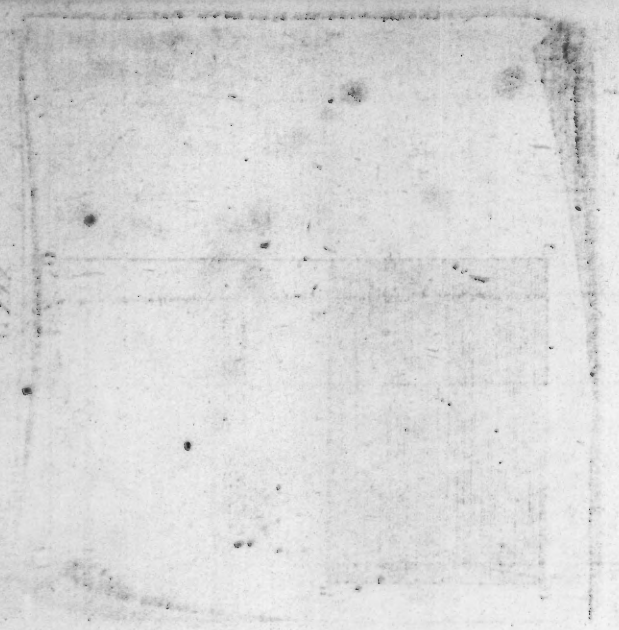
XXXIII Tom. 1.

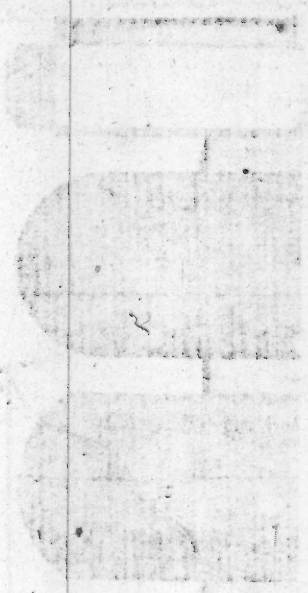


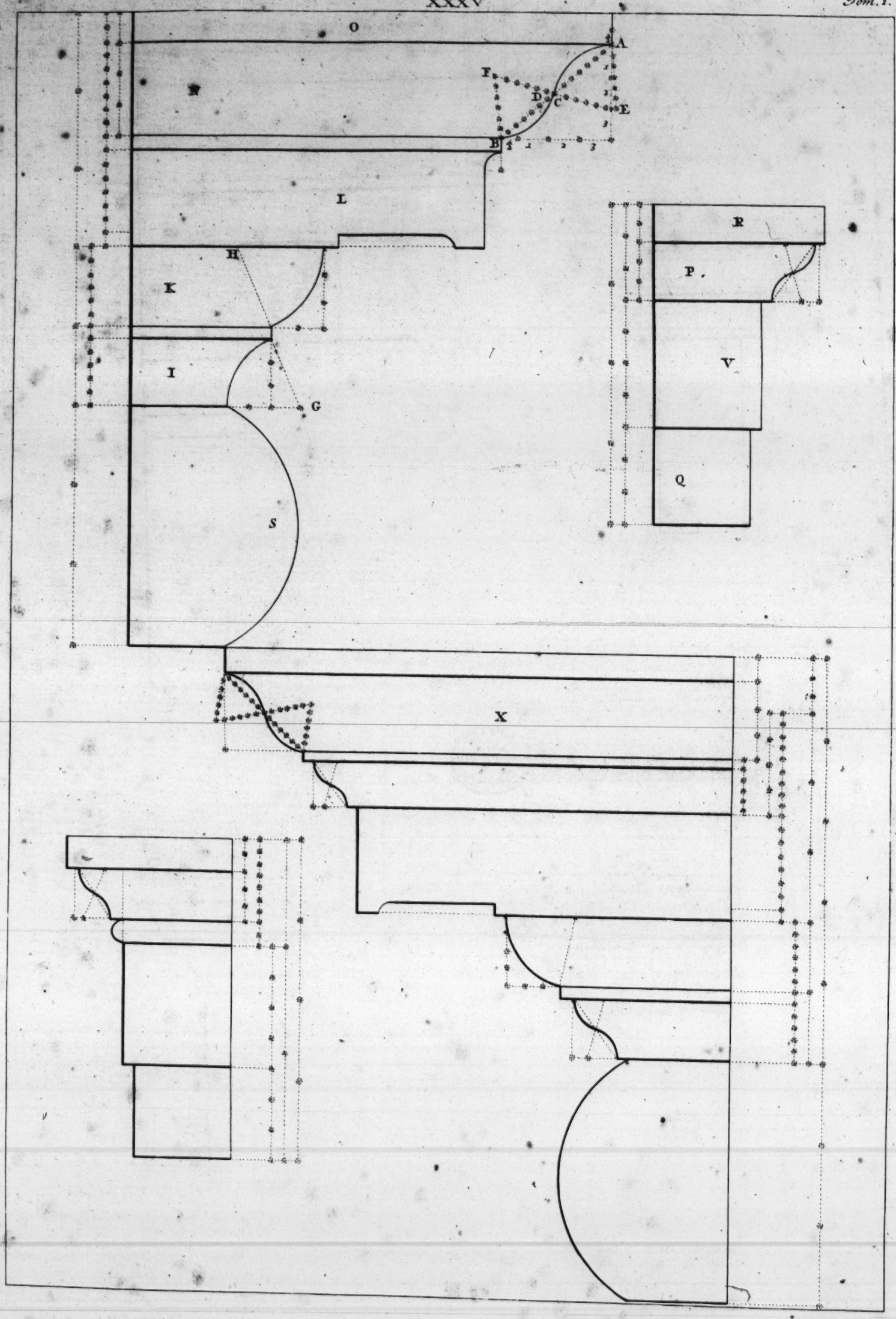
XXXIV Tom. 1.



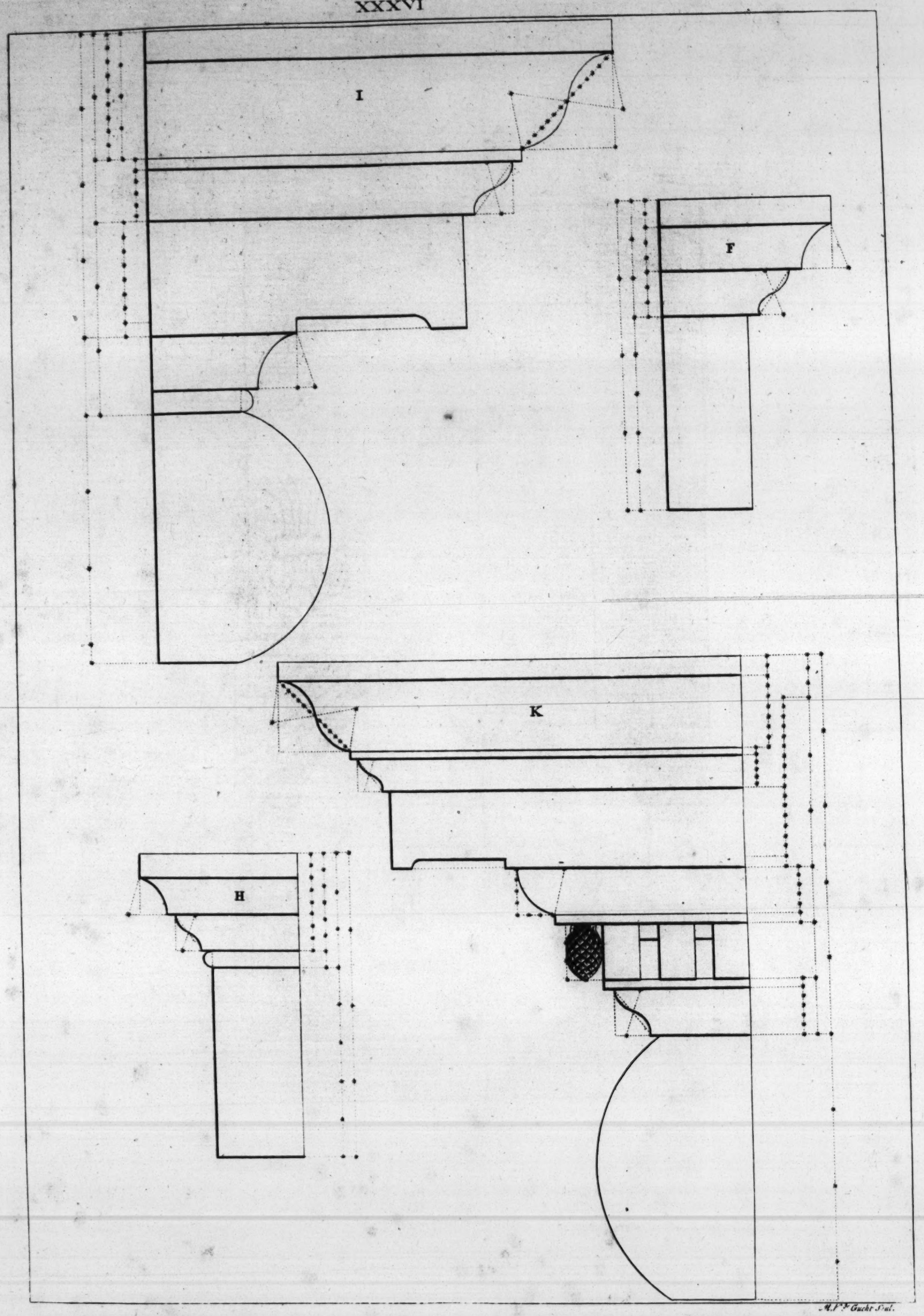






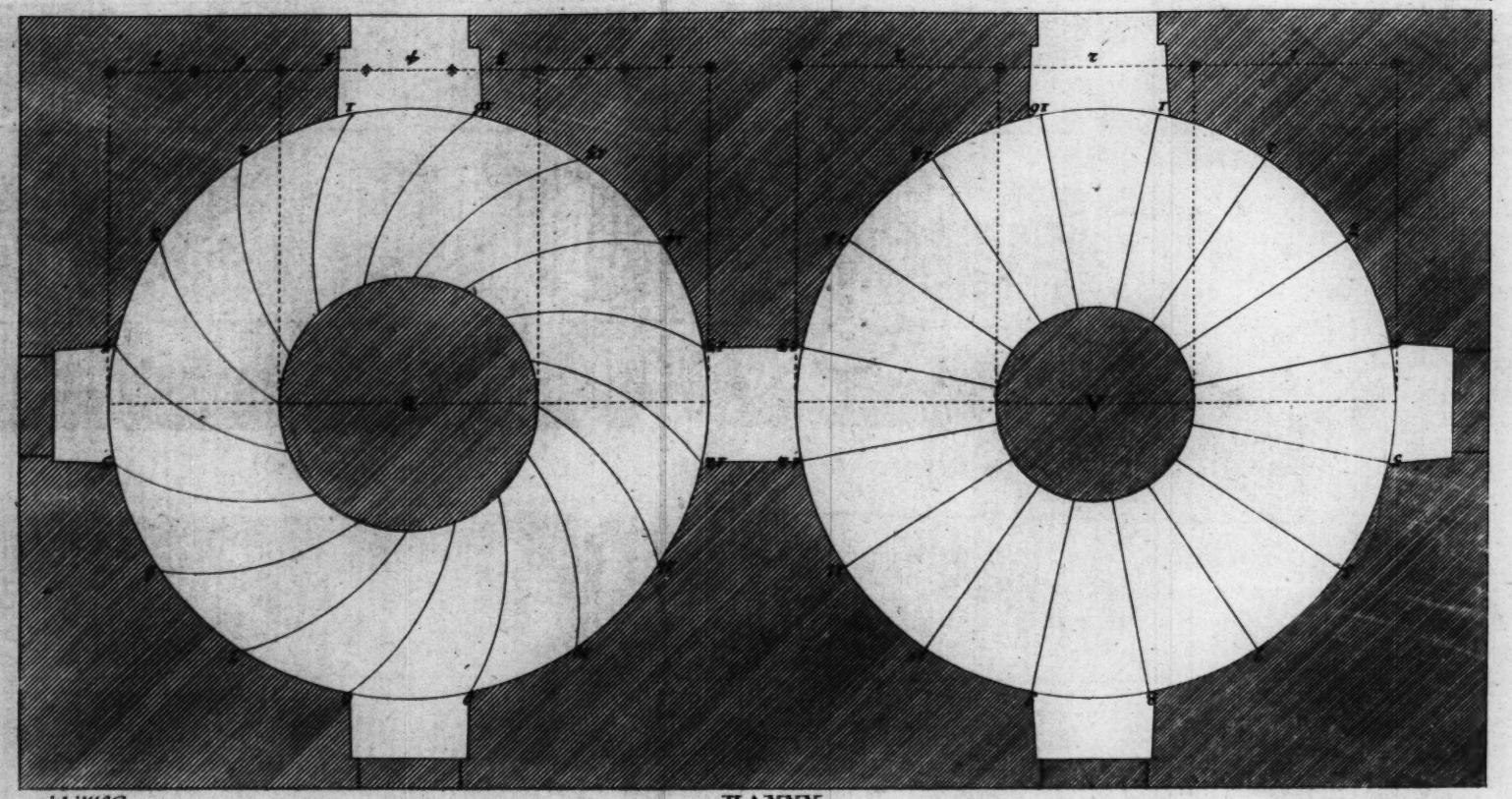

O
A
F
D
C
E
B
N
L
H
K
I
G
S
R
P
V
Q
X

XXXVI



M. J.r Gucht Sculpt.

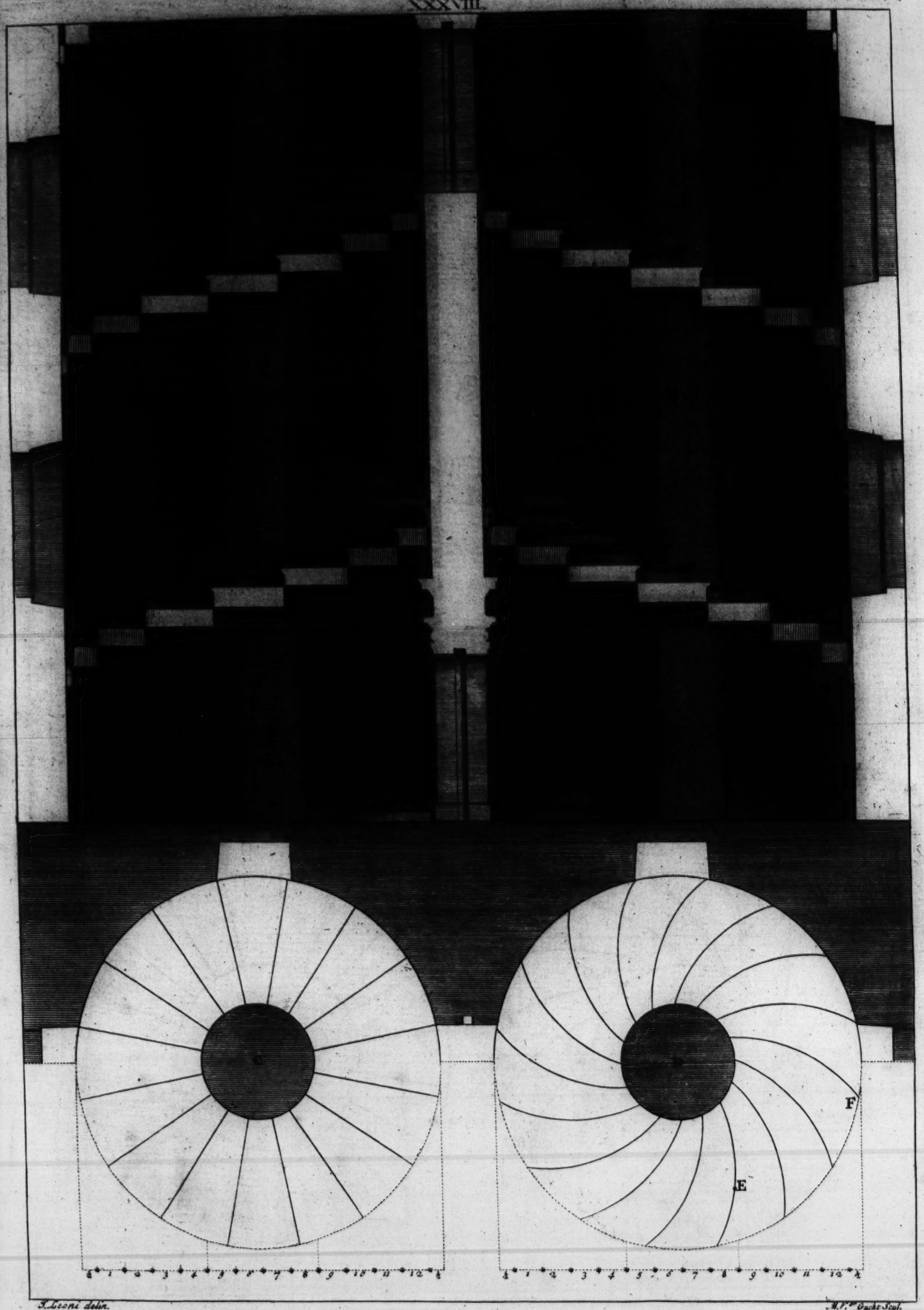
BIBLIOTECA
22 OCT 27
MUSEO



XXXVII

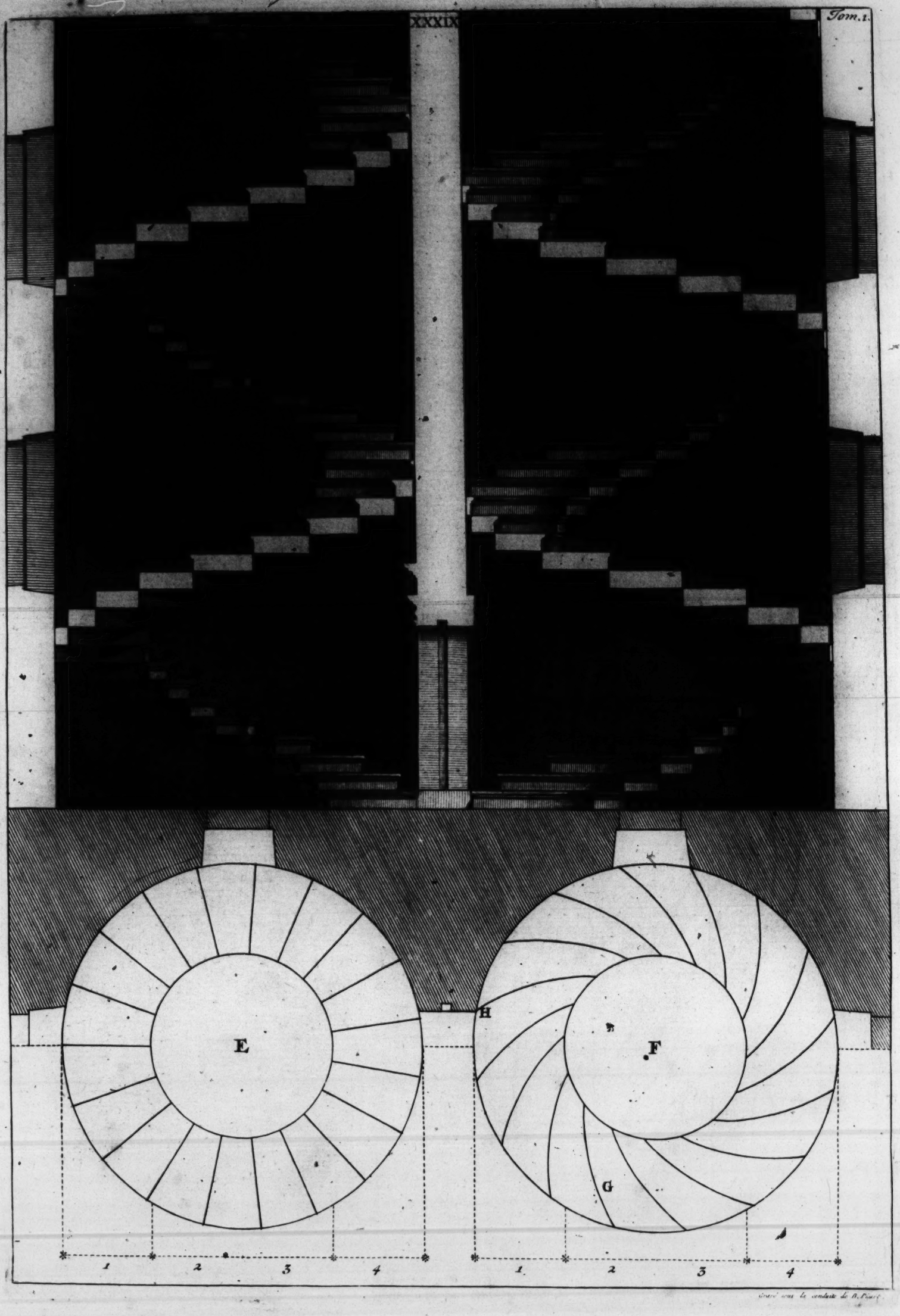
Elem. 1.

BRITISH
22 OCT 75
MUSEUM



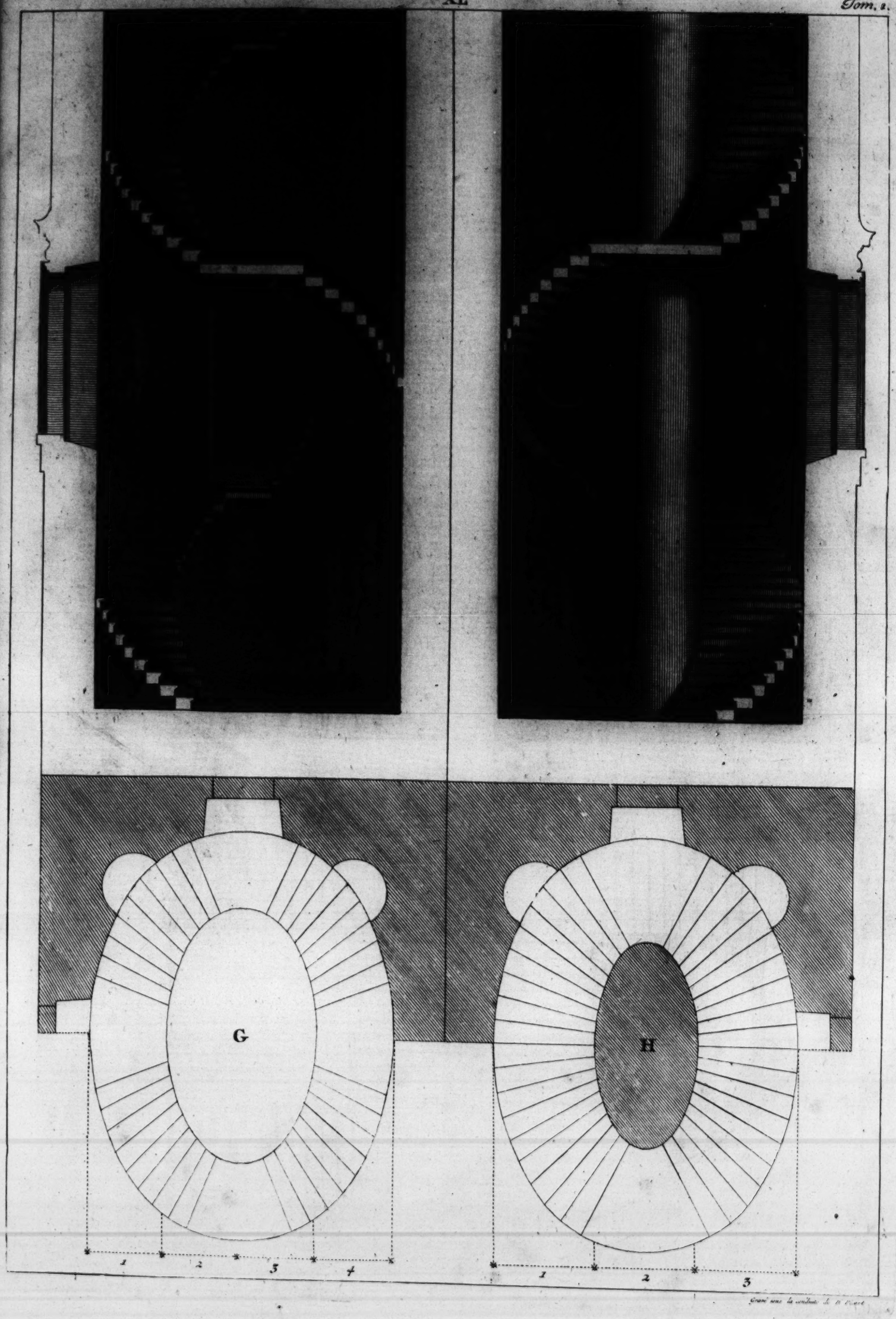
S. Leoni delin. M.P.^re Ouche Scul.

STANFORD
22 DEC 76
UNIVERSITY



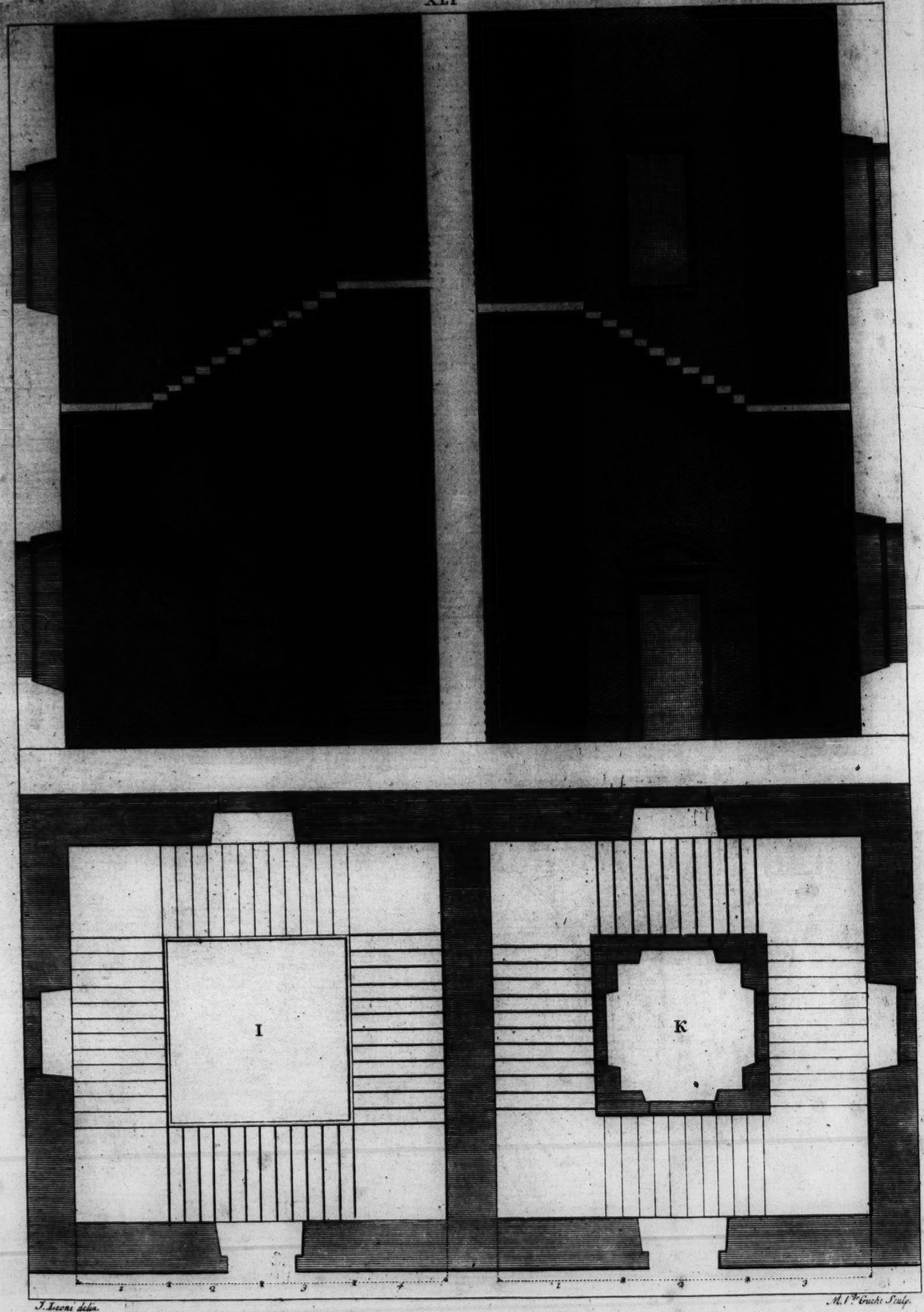
Gravé sous la conduite de B. Picart

SVENSKA
22 OCT 75
MUSEUM



Gravé sous la conduite de M. Pinart

FAIRLEY
92.10.22
PATENT



T. Leoni delin. M.I.Vr Gucht Sculp.

22 OCT 78

L F Q A

F

A

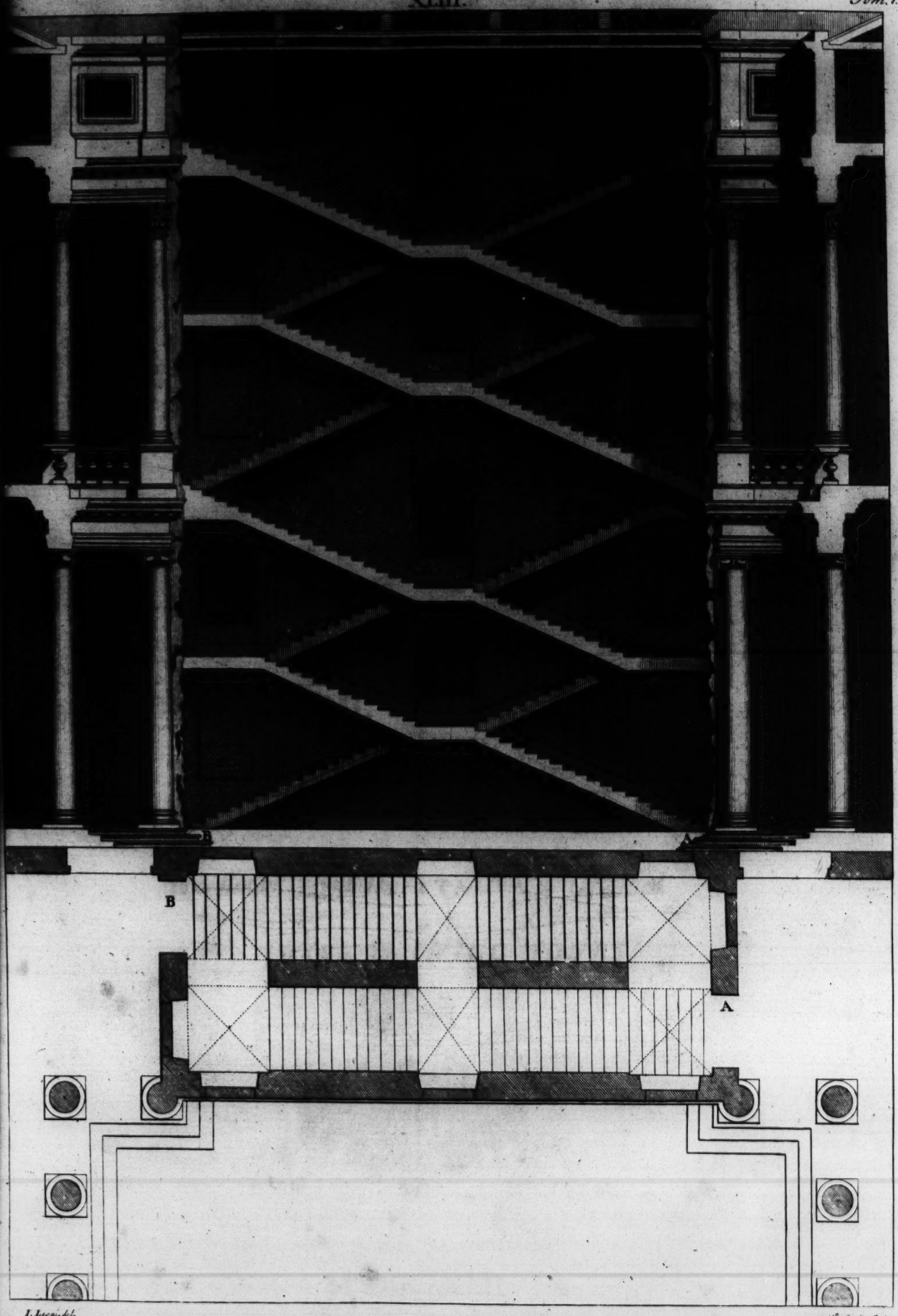
L

Q

J. Leoni del.

M.l.e Gucht Scul.

BRITISH
22 OC 76
MUSEUM



I. Lucas del.

M.J.P.e Coche Scul.

BRITISH
22 OC 75
MUSEUM

THE

ARCHITECTURE

OF

A. PALLADIO;

BOOK *the* SECOND.

CONTAINING

The DESIGNS of ſeveral Houſes which he has Built either in TOWN, or in the COUNTRY.

WITH

Some other DESIGNS of the Manner of Building among the GREEKS and ROMANS.

Reviſ'd, Deſign'd, and Publiſh'd

By GIACOMO LEONI, *a* Venetian, *Architect to His moſt* SERENE HIGHNESS, *the Late*

ELECTOR PALATINE.

Tranſlated from the ITALIAN *Original.*

With NOTES, by *INIGO JONES.*

M. DCC. XLII.

THE

ARCHITECTURE

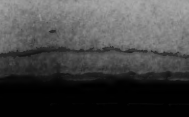
OF

A. PALLADIO;

BOOK the SECOND.

CONTAINING

The Designs of several Noble and Private Buildings in TOWN, as well as those in the Country, with their Plans, Elevations, Sections, and Profiles, at large.



THE SECOND BOOK.

CHAP. I.

Of the good Grace, Suitableneſs, and Proportion which ought to be obſerved in private Buildings.

I HAVE treated in the foregoing Book of all thoſe things which I thought moſt neceſſary to be obſerved in the conſtruction of public and private Buildings, in order to make them beautiful, convenient, and durable. I have alſo ſaid ſomething about the Conveniencies of private Gentlemen's Houſes, of which I particularly deſign to ſpeak in this ſecond Book.

AND becauſe we commonly call a Houſe convenient, when it is ſuitable to the quality of its Maſter, and that all the parts of it not only have a proportion anſwerable to the whole, but alſo an exact ſymmetry each with one another; an Architect therefore muſt chiefly obſerve, what *Vitruvius* recommends in his firſt and ſixth Books, *viz.* that when he builds for Perſons of Quality, and more eſpecially for thoſe that are in publick Employment, he muſt build their Palaces with Portico's, Galleries, and large ſtately Halls richly adorn'd: that thoſe who come for buſineſs, or to pay their reſpects to the Owner, may be received commodiouſly, and delighted and amuſed whilſt they wait for him. But for thoſe of a meaner Station, there muſt be a medium obſerv'd, as well in the ſize and form of the Building, as in the Ornaments and Expence. Judges and Counſellors Houſes muſt alſo have places fit to walk in, and where their Clients may wait without being weary. Thoſe of Merchants require Warehouſes, and other places expos'd to the North, wherein they may keep their Goods and other Commodities; and thoſe places muſt be ſo diſpoſed, that the Maſters may have no occaſion to fear Thieves coming at them. One muſt alſo obſerve ſuch a proportion, that every Member of the Building may agree with the whole; ſo that either in great, ſmall, or ordinary Buildings, one may obſerve the parts to be great, ſmall, or ordinary, ſuitable to their ſeveral Extents. For without doubt it would be a great fault, and a thing very diſagreeable, if in a large Edifice all the Halls and Rooms were ſmall; or if in a ſmall Houſe, two or three great Rooms ſhould take up the whole. One muſt then (as I ſaid juſt now) have regard, as much as poſſible, to the quality of the Gentleman who builds, more than to his wealth, and make him a Houſe ſuitable to his quality: which being agreed upon, the parts of the Building muſt be ſo adjuſted, that they all may agree with the whole, and every one with each other, with ſuch Ornaments as are ſuitable to them. But it frequently ſo happens, that the Architect is obliged rather to follow the fancy of him who intends to build, than thoſe Conſiderations which his Art and Judgment dictate to him.

CHAP. II.

Of the Compartition or Diſtribution of Chambers and other Places.

TO make Houſes convenient for a Family, (without which they cannot be approved of by any body) one muſt take a great deal of care, not only in what concerns the chief parts of them, *viz.* the Entries, Halls, Courts, great Rooms, light Stair-caſes (ſpacious and eaſy to go up and down) but alſo that the meaneſt and leaſt beautiful of them may be ſituated commodiouſly to ſerve the other greater and more conſiderable Apartments. For in the ſame manner as we ſee in the human body, ſome noble and beautiful Members, and others again as diſagreeable and ugly, which laſt are nevertheleſs very uſeful to the firſt, and without which they could not ſubſiſt; ſo ſome parts of a Building muſt make a fine and noble appearance, and ſome others be leſs beautiful and elegant, without which the chief ones could not be diſtinguiſhed, but rather loſe a part of their dignity and perfection. But as our bleſſed Lord has ordered our Members, ſo as to make the fineſt of them to be the moſt expos'd to ſight, and concealing them that are not ſeemingly ſo: juſt ſo we muſt contrive a Building in ſuch a manner, that the fineſt and moſt noble parts of it be the moſt expoſed to publick view, and the leſs agreeable diſpoſed in by-places, and removed from ſight as much as poſſible; becauſe thither ought to be carry'd the refuſe of the Houſe, and whatever may produce any ill effect or embaraſſment. For this reaſon I approve, that the Cellars, Wood-houſes, Pantries, Kitchen, Servants Halls, Landries, Ovens, and other Offices which are continually uſed, ſhould be placed in the lower part of the Building, and which I commonly order a little under ground. This diſtribution has two advantages: the firſt is, that the Apartment above is altogether free from the ſaid Incumbrances; and the ſecond, which is of no leſs conſequence than the former, is, that the ſaid Apartment is thereby much wholeſomer, its Floor being free from the moiſture of the Ground, beſides that its being high renders it more graceful, and contributes to a better proſpect. Care muſt be taken next, that in the reſt of the Building there be large, middle-ſiz'd, and ſmall Rooms; and that they be all near one another, for the better Communication between them. Convenient Partitions muſt be alſo contriv'd for Cloſets, Libraries, Horſe-Furniture, and to put out of the way other things which one may have daily occaſion for, and which would appear very unſeemly in a Bed-chamber, Dining-room, or place where Strangers are receiv'd. It is alſo convenient that the Summer-rooms be large and ſpacious, and open to the North; and the Winter ones ſmaller and open to the South and Weſt; becauſe that in Summer we ſeek the Air and Shade, and that in Winter we ſeek the Sun, as well as by reaſon little Rooms are eaſier warm'd than larger ones. But the Rooms deſign'd for Spring and Autumn ſhould look towards the Eaſt, and have their proſpect towards Greens and Gardens. Studies and Cloſets muſt alſo have the ſame proſpect, becauſe the Morning is the beſt time of reſorting to ſuch places. All the Rooms in general, either large, middle ſized, or ſmall, ought to be ſo order'd or contriv'd, that (as I have already ſaid) every part of the Building may correſpond one with the other, and the whole frame ſhew ſuch a convenience and ſymmetry between all its parts, as may render it handſome and agreeable. But becauſe it moſt commonly

happens

happens that in Cities, either the Party-walls, the Streets, or publick Places confine and reſtrain an Architect within certain bounds, beyond which he has not the liberty to go; therefore neceſſity compels him to ſuit himſelf with the place according to its Situation: and on thoſe occaſions, if I am not miſtaken, one may receive ſome benefit from the Plans and Elevations I am now going to give; which may alſo ſerve as Examples for what I have already ſaid in my firſt Book.

* This Plate repreſents half a *Vicentine* Foot, half a *French* Foot, and half an *Engliſh* Foot.

All the following draughts have been made and meaſured according to the *Vicentine* Foot, which is here divided into 12 Inches, and every Inch into 12 parts, as are alſo the *French* and *Engliſh* Foot.

N. B. That the *French* Foot, commonly called *Pié de Roy*, is equal to 11 Inches of the *Vicentine* Foot, and the *Engliſh* one makes only 10 Inches one quarter of the ſame.

CHAP. III.

Of the Conſtruction of Houſes in Towns.

I Am ſure that they, who ſhall look upon the Buildings I am going to give the draughts of in this Book, and they, who know how hard it is to introduce a new way, particularly into the Art of Building (in which every one preſumes to be knowing) will think me very happy, that I have met with Perſons who were generous, judicious, and reaſonable enough to hear and approve my Reaſons; and afterwards to give over that old way of Building, which is without any proportion or grace at all: and indeed I own it as a particular favour God has done me amongſt many others, to give me an opportunity of putting ſeveral things in practice, which I had learnt by a very laborious Examen and long Study. And tho' among thoſe very Buildings ſome have remain'd unfiniſh'd, yet it is very eaſy to judge by what is done, what the whole would have been. I have put the names of the Owners, and the places where the Buildings are ſituated, to their Draughts; that they who have a mind, may ſee how they have ſucceeded in the performance. After this I think it very proper to acquaint the Reader, that I have had no regard to the Rank or Quality of the Perſons in the order of my Draughts; for they are every one of great Quality and Honour, and I placed them only as they came firſt to my Memory.

But it is now time to come to our Buildings, the firſt of which is at † *Udene*, the Metropolis of *Friuli*. It was built from the Foundations by Signior *Floriano Antonini*, a Gentleman of the ſame Town. The Ground-floor Wall of the fore-front is Ruſtick; and the Columns of the Veſtibule and Gallery backwards are Ionick. The firſt Chambers are arched; and the Arches of the largeſt are made according to the firſt method I ſpoke of, concerning the Arches or Vaults that are in places longer than broad. The Chambers of the ſecond Story are ceil'd, and are a little broader than the lower ones, becauſe of the diminution of the Walls; the height of the Ceilings being equal to their breadth. There are other Chambers higher, that may ſerve for Garrets. The Hall is ſo high that it reaches to the very Roof. The Kitchen is ſeparated from the body of the Houſe; but for all that it's very convenient. Near the great Stairs is the Houſe of Office,

* *Plate* I. † *Plate* II.

which tho' in the body of the Houſe, does not give any ill ſmell, being in a place whereon the Sun does not ſhine, and having vents made in the thickneſs of the Wall from the bottom of the Pit to the very top of the Houſe, through which the offenſive ſmell is evaporated.

AT *Vicenza*, on the place vulgarly call'd the Iſle, Count *Valerio Chiericato*, an honourable Knight of the ſame Town, cauſed the following deſign * to be executed. This Building has a great Portico or Gallery in the lower part, that takes up the whole fore-front of it. The Baſe of the firſt Order is five foot above the ground, which is ſo diſpoſed that the Cellars may be underneath it, as alſo all the other Offices intended for the conveniency of the Houſe; which had not ſucceeded ſo well, were they quite under ground; becauſe of the neighbourhood of the River, and that thereby the upper Stories ſhould be more airy, and have a far better proſpect. The Vaults or Arches of the great Rooms are raiſed according to our firſt method, or firſt rate of Arches: the leſſer ones are arch'd ſhell-like, and are as high as thoſe of the largeſt ſort: the Cloſets are alſo arched, and have Mezzanino's or half Stories above them. Every Arch is adorn'd with compartitions of Fret-work curiouſly wrought by *Bartolomeo Ridolfi*, a Sculptor of *Verona*, with ſeveral excellent pieces of Painting done by Meſſer *Domenico Rizzo*, and Meſſer *Battiſta Venetiano*, men very famous in thoſe Profeſſions. The Hall is in the middle of the Fore-front above, and occupies the middle of the Gallery beneath. Its height reaches to the Roof of the Houſe, and becauſe it projects a little outwards, its Angles are ſupported by double Columns. On each ſide of this Hall are Galleries, the Cielings of which are adorn'd with Pictures that are extremely fine, and make a glorious ſhow. The firſt order of the Fore-front is Dorick, and the ſecond Ionick. This following deſign † repreſents part of the Fore-front enlarg'd.

THE next draughts ** are of Count *Iſſeppo de Porti*'s Houſe, a noble Family in the ſame City. This Building fronts two large Streets, and therefore has two Entries or Veſtibules with four Columns each, which bear an Arch to ſecure the ſuperincumbent weight. The Rooms of the firſt Story are arch'd; the height of thoſe on the ſides of the Veſtibule are after our ſecond method of Arches. The Rooms of the ſecond order are ceil'd, and all painted, as well as thoſe of the firſt Story, and ſet off with very rich Ornaments of Fret-work, made by thoſe Artiſts we ſpoke of before; and the Pictures are made by *Paul Veroneſe* a moſt famous Painter. From each of theſe Entries one may go through a Paſſage into a Court that is to be ſurrounded with a Portico; the Pillars of which are 36 $\frac{1}{2}$ Foot high, which is the whole height of the firſt and ſecond Stories. Behind theſe Columns are Pilaſters that are one Foot and 9 Inches diameter, and they project outwards $\frac{2}{3}$, ſupporting the Pavement of the upper Gallery. This Court divides the whole Houſe into two parts. The fore part is for the Maſter and his Women, and the back part is deſign'd for the reception of Strangers: that the one and the other may paſs to and fro with more freedom, a thing to which the Ancients, and particularly the *Grecians* had a ſpecial regard. And moreover this way of dividing a Houſe may be alſo very convenient, in caſe the Children or any of the Family ſhould require private Apartments. I placed the principal Staircaſes under the Portico, which is juſt oppoſite to the middle of the Court; that thoſe who go up and down may neceſſarily have a proſpect of the moſt beautiful part of the Houſe, and that being in the middle, they may ſerve the two ſeparate

* *Plate* III. † *Plate* IV. ** *Plate* V.

ſeparate parts of the Fabrick. The Cellars and other Offices are under ground. The Stables are ſeparate from the body of the Houſe, and have their Entries under the Stair-caſes.

* The firſt of the two great draughts repreſents a part of the fore-front; and the ſecond, that ſide that fronts the Court.

† The following Houſe is at *Verona*, which was begun by Count *Gianni Batiſta della Torre*, a Gentleman of the ſame City, whoſe Death put a ſtop to its finiſhing, tho' it was very far advanced. The Entries are by the ſides of it, where there are paſſages ten Foot broad, which lead to the Courts fifty Foot long, and from thence to an open Hall, adorn'd with four Columns, which ſerve alſo to ſupport ſecurely the upper Hall. This ſame Hall leads to the Stair-caſe, which is of an elliptical form, and open in the middle. The ſaid Courts are ſurrounded with Balluſtrades, that are level with the ſecond Floor. The other private Stairs ſerve for a greater Conveniency throughout the whole Houſe. This Compartition ſucceeds extraordinary well in its Situation, which is long and narrow, and one of the Wings fronting the principal Street of the City.

** The following is the draught of a Building at *Vicenza*, belonging to Count *Octaviano de Thieni*, and was begun by Count *Marc Antonio*. This Houſe being ſituated in the heart of the Town, near the Market-place, I thought it was very proper to leave room for Shops on that ſide which fronts the Market; the Architect being oblig'd to have ſome regard for the advantage of thoſe that are at the expence of the Building, when the extent of the Ground will conveniently allow it. Every Shop has over it a half Story for the uſe of the Shop-keeper, and over theſe are the Maſter's Apartments. This Houſe, as one may ſay, ſtands in an Iſland, being ſurrounded by four Streets. The chief Entry, or Maſter-gate (as we may ſpeak) has a Gallery before it, and fronts the principal Street of the Town. The great Hall is to be above it, and will project as far out as the Piazza underneath. In the two Wings are two other Entries with Columns in the middle, which ſerve rather to ſtrengthen the upper part, and render its breadth proportionable to its height, than for bare Ornament. By theſe Entries one paſſes to a Court ſurrounded with a Piazza, of which the firſt Row of Pilaſters are Ruſtick, and the ſecond row of the Compoſite order. The Rooms at the four corners are octangular, and have a good effect, both for their beauty, and the ſeveral conveniencies to which they may ſerve. The Chambers that are now finiſh'd have been adorn'd with very fine Stuccatures made by Meſſer *Aleſſandro Vittoria*, and Meſſer *Bartolomeo Ridolfi*, and painted by *Anſelmo Canera*, and *Bernardino India*, both of *Verona*, and not inferior to the beſt Maſters in their profeſſion. The Cellars and ſuch like places are under Ground, becauſe the Building is ſituated in the higheſt part of the Town, where there is no great fear of Water.

†† The firſt of the two great draughts following repreſents a part of the Fore-front of the Houſe, the ſecond that ſide which fronts the Court.

The Counts *Valmarana*, of a moſt noble Family of the ſame place, have alſo built according to the following deſigns *†, not only for their own honour and conveniency, but alſo for the ornament and glory of their Country. They have left nothing wanting which may be deſir'd in the enriching of ſuch a Building either for Stuccature or Painting. This Houſe is divided into two parts by a Court in the middle, about which there is a Corridor with Balluſters, which leads from the fore-part of the Houſe to that which is behind the Court. The Chambers of the firſt Floor are arch'd; and the upper ones are ceil'd, of which the height is

* *Plate* VI. *and* VII. † *Plate* VIII. ** *Plate* IX. †† *Plate* X. *and* XI. *† *Plate* XII.

is equal to their breadth. The Garden before the Stables is 120 Foot long by 60 Foot wide. I think this deſcription is ſufficient for what concerns this Houſe, all the reſt being eaſily ſeen in the Plan of it, where I have ſet down the meaſure and ſize of every part, in the ſame manner as in the foregoing ones.

* THE draught that follows is one half of the fore-front on a large Scale.

AMONGST ſeveral worthy Gentlemen of *Vicenza*, there is Signor *Paolo Armerico*, who was Referendary to the Popes *Pius* the fourth and fifth, and deſerv'd to be made a Citizen of *Rome*; as well as all his Family for his ſake. This Gentleman after having travel'd a long time to improve himſelf, being come to ſettle at laſt in his own Country, after the death of all his Friends, choſe his abode at a Country-houſe he had on a Hill, within leſs than half a Mile of the Town, where he ſince has built the following Houſe †, which I have not placed among the Country-houſes, becauſe of its proximity to the Town, to which one may properly ſay it belongs. Its Situation is as advantageous and delicious as can be deſir'd, being ſeated on a hillock of a moſt eaſy aſcent, at the foot of which runs the *Bacchilione*, a navigable River. On the other ſide, it is ſurrounded by ſeveral Hills, that ſeem to form a great Theatre, and which beſides are all of them cultivated, being very fertile, abounding with excellent Fruits and Vineyards: ſo that having the advantage of fine Proſpects on all ſides, ſome confin'd, ſome more remote, and ſome farther than the ſight can reach, I have made Portico's to all the fore-fronts; under the which, and alſo of the Hall, I have contrived Rooms for the uſe and conveniency of thoſe of the Family. The Hall which is circular, and placed in the middle of the Building, receives its Light from the top. The Cloſets have *Mezzanino's*. Above the great Rooms ſurrounding the Hall (the Arches of which are after our firſt method) there is a Platform to walk on 15 ½ Foot broad. On the Pedeſtals, which ſupport the ſteps of the four Portico's, are Statues made by Mr. *Lorenzo Vicentino*, an excellent Sculptor.

SIGNOR *Guioglio Capra*, a worthy Gentleman of the ſame Town, for the honour of his Country rather than for his own conveniency, has made all the preparations neceſſary, and even begun to build the following deſign **, which is advantagiouſly ſituated, in the principal Street of the Town. This Building is to have Courts, Galleries, Halls and Chambers of all ſorts, ſome being large, ſome little, and others of a middle ſize. The form of it is beautiful and diverſify'd, ſo that it will be magnificent and noble, ſuitable to the dignity and generoſity of its Maſter.

C. *A little open Court.*
D. *Another little Court.*
L. *The great Court.*
S. *A Hall which is ſupported with Columns underneath, but having none above, makes it appear much lighter.*

COUNT *Montano Barbarano*, having a place to build on in *Vicenza*, deſir'd me to give him the following deſign ††, which not ſuiting the place at firſt, I was obliged to make ſome Alterations in it; but that Gentleman having ſince bought the ground that was wanting, the firſt deſign has been entirely executed. The Stables and Servants Rooms on the one ſide anſwer to the Womens Apartment, to the Kitchen and other convenient Offices on the other ſide, as may be ſeen in the draught. This Building is ſo far advanc'd, that they are raiſing the Fore-front, which is made according to the following deſign in great *†. I could

* *Plate* XIII. † *Plate* XIV. *and* XV. ** *Plate* XVI. †† *Plate* XVII. *† *Plate* XVIII.

could not furniſh the Printer ſoon enough with the plan of the laſt draught, according to which it was finally reſolv'd to build it, and that the Foundations of it are already laid. The Entry has ſome Columns which ſupport an Arch for the reaſons before given. On each ſide there are two Chambers, which are a ſquare and a half in length, at the end of which are two ſquare ones, and after them two Cloſets. Oppoſite to the entry is a paſſage that leads to a Portico towards the Court. On each ſide of this ſame paſſage is a Cloſet with a *Mezzanino* above it, to which one goes by the principal Stair-caſe. All the Arches of theſe places are twenty one Foot and a half high. The Hall above, and all the other Rooms are ceil'd, except the Cloſets, which are arch'd as high as the Ceilings of the Rooms. The Columns of the fore-front have their Pedeſtals, and ſupport a Corridor, to which one enters by the Soffit. The front is not to be after this firſt method, as I have ſaid before, but as it is in the next deſign * drawn upon a larger Scale.

CHAP. IV.

Of the Tuſcan Atrium, *or Hall.*

NOW that I have given the deſigns of ſome Houſes I have erected in Cities, I think it proper to diſcharge my ſelf of my promiſe, in deſcribing ſome of the principal places of which the Houſes of the Ancients were compoſed. I ſhall begin with the *Atrium*, as being one of the moſt principal parts, and come afterwards to the other adjoining parts of the ſaid Buildings, and laſtly to their common Halls. *Vitruvius* in his ſixth Book obſerves that there were five ſorts of theſe *Atriums* among the Ancients, *viz.* the *Tuſcan*, that of four Columns, the *Corinthian*, the *Teſtudinated*, and the open one, of which I intend not to ſpeak. The following deſigns † are for the *Tuſcan Atrium*. The breadth of this is equal to the two thirds of its length. The breadth of the Record-room is but two fifths of that of the *Atrium*, which is ſquare. From this one paſſes into the Periſtylos, which is a Court ſurrounded with Pilaſters, a third longer than its breadth. The breadth of the Piazza or Portico (*that is, the ſpace from the Wall to the Pillars*) is equal to the height of the Columns. Oppoſite to the wings of the *Atrium* one might contrive little Halls, having a proſpect over the Gardens; and if they are made as they are repreſented in the draught, their Columns ſhould be *Ionick*, about twenty Foot high, and then the Piazza's would be as broad as the diſtance between each Column. Above there ſhould be ſome other Columns of the *Corinthian* Order, a fourth part leſs than thoſe below, between whom there ſhould be Windows to give light, in imitation of the *Corinthian* Halls, *as one may ſee hereafter, Plate* XXX. The opening above ſhould be without any cover at all, and ought to be ſurrounded with a Balluſtrade. If the ground will allow it, one may make more or leſs Lodging than I have here drawn, according as the uſe and conveniency of the maſter ſhall require:

THE following draught ** upon a larger Scale repreſents this *Atrium*:

A. Atrium.

B. *Door to the Record-room.*

* *Plate* XVIII. † *Plate* XIX. ** *Plate* XX.

C. *Record-room.*
D. *Portico of the* Periſtylos.
E. *Portico, or Gallery before the* Atrium, *which may be called the Veſtibule.*
F. *Freeze and Cornice on the Breſt-ſummer, ſupporting the top of the* Atrium.

CHAP. V.

Of the Atrium *with four Columns.*

THE following deſign *repreſents the *Atrium* with four Columns; the length of which being divided into five equal parts, the breadth takes up three. The Wings (*that is, the ſpace between the Wall and the Columns, which is not comprehended in the breadth of the* Atrium) have in breadth a fifth part of the height of the Columns. The Columns are *Corinthian*, and their diameter is equal to the breadth of one half of the Wings. The opening above is the third part of the breadth of the ſaid *Atrium*, and the breadth of the *Charter-room* is half of the breadth of the ſame *Atrium*, and has the ſame length. From which *Atrium* one paſſes through the Charter-room into the *Periſtylos*, which is a ſquare and a half in length. The Columns of the firſt order are *Dorick*, and the breadth of the Portico is equal to the height of thoſe Columns. Thoſe of the ſecond order are *Ionick*, and a fourth part leſs than the firſt, under which there is a Pedeſtal two Foot and three quarters high.

A. Atrium.
B. *Door to the Charter-room.*
C. *Charter-room.*
D. *Portico of the* Periſtylos.
E. *Chambers near the* Atrium.
F. *Portico through which one enters into the* Atrium.
G. *Wings of the* Atrium.
H. *Freeze under the Cornice of the* Atrium.
I. *Opening on the top of the* Atrium, *with a Balluſtrade round it.*
K. *Solid above the Columns.*
L. *Scale of ten Foot.*

CHAP. VI.

Of an Atrium *made after the* Corinthian *manner.*

THE Edifice which I am going to deſcribe†, is at *Venice* in the Convent named the *Charity*, belonging to the regular Canons. I have endeavoured to make this Houſe reſemble thoſe of the Ancients, and in order thereto, I have built a *Corinthian Atrium* in it, the length of which is the diagonal of its ſquare. The wings (*that is, the ſpaces between the Wall and the Columns*) have in breadth two ſeventhes of the length of the *Atrium*, that is, one for each Wing. The Columns are *Compoſite*, and are three Foot and a half in diameter, and 35 Foot high. The aperture in the middle is one third of the breadth of the *Atrium*, taken between the Columns. Above the *Atrium* there is a Terrace level to the third order of the Cloiſter, where the Cells of the Canons are. The Veſtry is on one ſide, near the *Atrium*, round about which there is a *Dorick* Cornice

* *Plate* XXI. † *Plate* XXII.

Cornice which ſupports an arched ceiling. The Columns that are there, bear up that ſide of the Cloiſter's Wall, which in the upper part divides the Chambers or Cells from the Galleries. The Veſtry ſtands in the place where the Ancients kept the Images of their Anceſtors, and which they called the Record-room; tho', to ſuit with the conveniency of the place, I have made the wings of the *Atrium* ſerve for that uſe, oppoſite to the Veſtry in the *Chapter-hall* anſwerable to one another. On the ſide near the Church, there is an *Elliptical*, or oval Stair-caſe, open in the middle, which is very commodious and agreeable. From the *Atrium* one enters into the Cloiſter, where there are three Orders of columns one over the other. The firſt is *Dorick*, and its columns project more than one half from the Pilaſters. The ſecond is *Ionick*, and the columns are a fifth part leſs in height than the former. The third is *Corinthian*, and diminiſhes alſo a fifth in the height of the ſecond. In this laſt range, inſtead of Pilaſters, there is a contiguous Wall; and over the center of the Arches of the two firſt orders, are Windows which give light to the Entries of the Cells, the arched ceilings whereof are made of cane, to diſcharge the Walls. Oppoſite to the *Atrium* and the Cloiſter, beyond the Stair-caſe, is the Refectory, or large Dining-room, which is two ſquares in length, and raiſed to the third Story of the Cloiſter. It has a Gallery on each ſide, and under it a Cellar made in the ſhape of a Ciſtern, that no Water may come into it. At one end are the Kitchen, the Ovens, the Poultry-yard, the Wood-houſe, the Landry, and a pretty fine Garden; at the other end are other Conveniencies. This Building has 44 Rooms, and 46 Cells, including the apartments for Strangers, and other places for ſeveral uſes.

THE firſt * of the following draughts is a part of the Atrium drawn at large, and the ſecond † is a part of the Cloiſter.

CHAP. VII.

Of the Teſtudinated Atrium, *and the private Houſes of the ancient* Romans.

BESIDES the various forms of *Atriums* we have ſpoken of before, there was one very much in uſe among the Ancients, which they called *Teſtudinated* (*that is, after the form of a Tortoiſe*) and becauſe what *Vitruvius* ſays of it is very obſcure and difficult, and conſequently requires a particular Obſervation; I ſhall therefore acquaint you with what I think upon that ſubject, adding alſo the diſpoſition and ſituation of the *OEques*, or great Halls of the *Chanceries*, *Refectories*, Baths, and the like; ſo that the following Cut ** ſhall repreſent all the parts of a private Houſe, every one in its place, according to *Vitruvius*.

THE length of the *Atrium* is equal to the diagonal of its ſquare, and has its full breadth in height, which reaches as far as the ſummer, or architrave of the Roof. The Rooms on the ſides are ſix Foot leſs in height; and above the Walls which ſeparate them from the *Atrium*, there are Pilaſters which bear the Roof of the ſaid *Atrium*: between theſe Pilaſters there are ſome Apertures or Windows which give light to the ſaid *Atrium*; for the Chambers have an open platform or terrace above them. The Record-room is oppoſite to the entry, and is two fifths of the breadth of the *Atrium*. This place ſerved, as I ſaid before, to put in the Images

* *Plate* XXIII. † *Plate* XXIV. ** *Plate* XXV.

Images or Titles of their Anceſtors. A little further one finds the *Periſtylos*, about which are Piazzas as broad as is the height of the columns. The Chambers are of the ſame breadth, and their height, to the impoſt of the Arches, is equal to their breadth; as the Arches have in height the third part of their diameter. *Vitruvius* has deſcribed ſeveral ſorts of *OEques*, which were great Halls or Sallons for Feaſting and other Recreations, wherein alſo the Women did their work. Some of theſe were called *Tetraſtyli*, becauſe they had in them four Pillars. Others were called *Corinthian*, which were ſurrounded with ſemi-columns. The *Egyptian* ones had, over and above the firſt row of columns, a Wall, which incloſed them with half-columns placed directly above the lower ones, and a fourth part leſs. Between theſe pillars were the Windows that gave light to the Hall. The Height of the Galleries that ſurrounded it, did not exceed the columns of the firſt order; and above all there was a plat-form with a corridor, and an elbow-rail round the whole. I ſhall give a deſign of each of theſe kinds of Halls ſeparately. The ſquare Halls were to take the cool in during the Summer, and had commonly the proſpect of Gardens or other Verdures. They had alſo another kind of Halls that were called *Cizicenes*, and which were alſo deſign'd for the aboveſaid uſes. The Chanceries and Libraries were generally on the Eaſt-ſide, as alſo the *Triclinia*, or Eating-rooms. There were likewiſe Bagnios for Men and Women, which I have repreſented in the further part of the Houſe.

A. Atrium.
B. *Record-room.*
C. Periſtylos.
D. *Halls after the* Corinthian *manner.*
E. *A Hall with four Columns.*
F. *A* Baſilica.
G. *Apartments for the Summer.*
H. *Chambers.*
I. *Libraries.*

The following deſign * is for the ſame *Atrium*, from a larger Scale.

A. Atrium.
B. *Record-room.*
C. Piazza *about the inner court.*
D. *The inner court.*
E. *Door-way to the Record-room.*
F. *Part of the* Corinthian *Hall.*
G. *Galleries, or Piazzas.*
H. *Piazza before the* Atrium.
I. *Chambers about the* Atrium.
K. *Summers making the Freeze of the Entablature within.*
L. *Windows which give light to the* Atrium.
M. *The flat above the Walls of the* Atrium.

CHAP. VIII.

Of the Halls with four Columns.

THE following deſign † is of that ſort of Hall call'd *Tetraſtylos*, becauſe it had four columns. It was made ſquare, and the columns ſerved not only to proportion the breadth to the height, but alſo to make the upper place ſtill the firmer; which is a thing that I have practiſed in moſt of my Buildings, as may be ſeen both in the deſigns I have already given, and in thoſe that are to follow.

* *Plate* XXVI. † *Plate* XXVII.

CHAP.

CHAP. IX.

Of the Corinthian *Halls.*

THE *Corinthian* Halls were of two ſorts. The firſt had their columns only laid on the Floor, as may be ſeen in the firſt deſign *; and the ſecond were laid on Pedeſtals, as in the ſecond deſign †: But the columns in both were always near the Wall, and the *Architrave*, *Freeze*, and *Cornice* were made with Stuc, or elſe of Wood, and there was but one row of Pillars. The Ceilings were either made ſemi-circular, or ſcheme, that is, ſo flat as to have in height only one third of the breadth of the Room. They were generally advanced with compartments made with ſtuc and painting. The length of theſe Halls would be of a fine proportion, if it was of a ſquare and two thirds of their breadth.

CHAP. X.

Of the Hall after the Egyptian *manner.*

THE following deſign ** is for Halls after the *Egyptian* way, which very much reſemble *Baſilicas*, or Courts of Juſtice, (of which I ſhall alſo ſpeak when I treat of publick Buildings) becauſe theſe ſorts of Halls had a Portico wherein the columns were at a diſtance from the Wall, after the ſame manner as in the *Baſilicas*; and upon theſe Pillars were placed the *Architrave*, *Freeze*, and *Cornice*. The ſpace between the Pillars and the Wall was covered with a platform ſurrounded by a Corridor with rails and balluſters. Above the ſame Pillars, there was a continu'd Wall with half Pillars on the inſide of it, a fourth part leſs than the lower ones. Between the ſaid half Pillars were placed the Windows that gave light to the Hall, and through which, when laid open, thoſe that were on the platform could look into it. This ſort of Halls muſt needs have been of an admirable magnificence, as well by reaſon of the ornaments of its Pillars, as for its height; becauſe the *Soffite* reached above the Cornice of the ſecond Order, and one may judge how commodious they were, for receiving great companies, for banqueting, and for all manner of Recreations.

* *Plate* XXVIII. † *Plate* XXIX. ** *Plate* XXX.

CHAP. XI.

Of the private Houſes of the Greeks.

THE *Greeks* had a different way of Building from the *Romans*; for, as *Vitruvius* ſays, inſtead of making Portico's, or Galleries and Halls, they made the entry to their Houſes very narrow *, placing on one ſide the Stables, and the Porter's-lodges on the other. From this firſt entry, one paſs'd into a Court, which had *Piazzas* on three ſides, and towards that of the South they made *Anti*, or butments of Pilaſters, which ſupported the joyſts of the Ceiling more inwards: becauſe, that leaving ſome ſpace between the one and the other, they had very large places, which they appointed for Lodgings to the Miſtreſs of the Houſe, and to the Men and Maid Servants. On the ſame Floor with theſe butments, there were ſome Rooms which we may call Anti-chambers, Chambers, and Drawing-rooms, being every one juſt behind the other. About the *Piazzas* were places appointed for eating, ſleeping, and the like Family neceſſities. To this Building was another join'd, greater and better adorn'd, with larger Courts, wherein they made four *Porticos*, or *Piazzas* of equal height, if they did not make one of a larger ſize to the South; and then the Piazza on that ſide was called *Rhodian*, perhaps becauſe the *Rhodians* firſt uſed this manner of Building. In theſe Courts were very magnificent Galleries to the Front: they had their own Gates, being inhabited only by Men. On the right and left ſide of this Building they made others, which, as well as the foregoing, had their own particular Gates, with all the conveniences neceſſary for a dwelling. There they uſed to lodge Strangers; for it was a cuſtom among this Nation, that when they had a foreign Gueſt, they entertain'd him at their own Table the firſt day; but after that time they aſſign'd him an Apartment in this kind of Houſe, wherein they furniſhed him with every thing neceſſary for his maintenance: ſo that Strangers were thus obliged to no Ceremony, and had the ſame liberty as if they had been all the while at their own home. And now I think I have ſufficiently explained the ancient *Greek* way of Building, as well as that we practiſe our ſelves at preſent in the Towns.

Parts of a private Houſe after the *Grecian* manner.

A. *Paſſage at the entry of the houſe.*
B. *Stables.*
C. *Porter's Lodge.*
D. *Firſt Court.*
E. *Lobby, or Veſtibule, thro' which people paſt into the rooms.*
F. *Places where the women did their work.*
G. *Firſt great Chamber, which we may call an Anti-chamber.*
H. *A leſſer room.*
I. *A Cloſet.*
K. *Great dining-room.*
L. *Common Chambers.*
M. *Second Court, larger than the firſt.*
N. Piazza *larger than the three others, the Court of which is call'd* Rhodian.
O. *Paſſage leading from the little Court to the greater.*
P. *Three* Piazzas, *the pillars of which are ſmall.*

* *Plate* XXXI.

Q. Cizicene

Q. Cizicene *Refectories, and Chanceries, or places that uſed to be painted.*
R. *Hall.*
S. *Library.*
T. *Square Hall where they uſed to eat.*
V. *Apartments for Strangers.*
X. *Small paſſages which divided the ſtrangers apartments from thoſe of the maſter.*
Y. *Small open Courts.*
Z. *The principal ſtreet.*

CHAP. XII.

Of the Situation which ought to be choſen for Country Houſes.

AS certainly 'tis highly creditable and convenient for a Gentleman to have a Houſe in the City, where he is obliged ſometimes to reſide, either as occupying ſome publick Poſt in the Government, or for the management of his own private Affairs; ſo perhaps he may receive no leſs pleaſure and advantage from a Houſe in the Country, where he paſſes the reſt of his time in ſeeing and improving his own Poſſeſſions, in augmenting his ſubſtance by induſtry and agriculture; where, by exerciſing himſelf, either in walking, or on Horſe-back (which are only proper for the Country) he preſerves his Body ſtrong and healthy; and where, in a word, the mind being overlaboured by the fatigues of the City, will be ſingularly recruited and recreated: ſo that he may then quietly apply himſelf to the ſtudy of Books, or the contemplation of Nature, in imitation of thoſe ancient Sages, who, on ſuch acccounts, uſed frequently to retire to the like places; where being viſited by their virtuous Friends and Relations, and poſſeſſing Pleaſure-houſes, Gardens, Fountains, and ſuch other Objects of diverſion, but above all their own virtue, they could eaſily attain that higheſt pitch of a happy Life, that on this earth can be poſſibly enjoyed. Now, having already, by the help of God, finiſhed all I had to ſay with relation to Houſes in the City, 'tis but reaſonable I ſhould paſs next to thoſe in the Country, where private Affairs and Family-buſineſs are chiefly tranſacted. But before we come to give the deſign and draughts of ſuch, it appears very proper to diſcourſe a little about Situation, or the places fit to be choſen for ſuch Buildings; and of the compartment or diſtribution of the parts of the ſame: becauſe not being commonly (as in Towns) ſtraiten'd for room by publick Buildings, nor confin'd by our Neighbours to certain determinate bounds, it is the duty of an able Architect to find out with all care and diligence the moſt commodious and healthy places; ſince People live in the Country for the greateſt part of the Summer, during which ſeaſon, our Bodies, even in the healthieſt region, are apt to grow weak and ſickly, by reaſon of the heats. In the firſt place therefore, let the ſeat pitch'd upon be, as near as poſſible, the moſt convenient for the owner's Eſtate, that is, towards the center of the ſame; to the end that without much fatigue, he may himſelf view the whole at any time, and make improvements all around; as likewiſe that the Tenants and Labourers may the more eaſily bring the growth of it to his Houſe. If the Building can be erected near a River, it will much conduce to its Beauty and Convenience; becauſe thus not only the products of the Land can at all times be the more eaſily carry'd by Water to the City, and that the Water itſelf will ſerve the uſes of the Houſe and Cattle; but it will render the proſpect moſt agreeable,

[a] It is a beautiful and commodious thing to build a Country-houſe upon a Moat, for the eaſy Tranſportation of Goods and Proviſions; beſides, one may eaſily water Gardens and other Grounds.

agreeable, notably refreſh the Air in Summer, and with no ſmall advantage, as well as ornament, water the Fields, Gardens and Stalls, which are the very ſoul and ſupport of a Country *Villa*. But if the ſituation can't be near a navigable River, let it be however near ſome Brook, or other running Water, and as far as may be from dead or ſtagnant Waters; becauſe theſe generate the very worſt of Air, which may be eaſily avoided, by building in elevated and agreeable places: I mean where the Air being free, is in a continual motion, and the Earth, by reaſon of its declivity, purg'd from all humid and noxious Vapours; where the Inhabitants are healthy, chearful, and very well complexion'd; and where one is not diſturb'd with the noiſe of Gnats, and other troubleſome little Animals, which breed in putrefy'd and marſhy Waters. Yet ſince Water is abſolutely neceſſary to the Life of Man, and that Waters of different qualities produce in us different Effects, (whence ſome beget the Spleen, ſome the Gout, others the Stone, and others other Diſtempers) ſo the utmoſt care is be taken, that the Houſe may be near ſuch Water as has no odd or ill taſte, and that has no particular Tincture: but, on the contrary, that it be limpid, clear, light, and ſuch as, ſprinkled, will not ſtain white Linnen, all theſe being ſigns of its goodneſs. *Vitruvius* has taught us many ways of trying the goodneſs of the water; and that Water is held perfect in its kind, which makes good Bread, wherein Greens are quickly boil'd, and which leaves no ſediment in the bottom of the Veſſel. It is an excellent mark of the goodneſs of Water, if in its paſſage there neither grow moſs nor ruſhes; but that its bed be clean and fine, with ſand or gravel at the bottom, and without mud or ſlime. The very animals that drink ordinarily of ſuch Waters will give marks of their goodneſs, if they are hearty, brisk, ſtrong, and in good caſe, being neither lean nor feeble. As for the ſalubrity of the Air, an indication of it, over and above thoſe already mention'd, may be taken from old Edifices, if they are neither corrupted nor conſumed; from the Trees, if they be thriving, beautiful, ſtrait, and none of thoſe that naturally grow in fenny places; from the Rocks and Stones of the place, if they ſhew no ſigns of rottenneſs in the part that's above the ſurface of the Earth; and even from the complexion of the Inhabitants, if it be natural, and ſhews a good Conſtitution. None ought to build in Valleys encloſed by Mountains: becauſe Houſes hid in ſuch places, beſides their being depriv'd of diſtant Proſpects, and that they are not conſpicuous to others, which loſes all their Beauty and Reputation; they are moreover in every reſpect injurious to health, becauſe the Earth, being impregnated with the Rains that ſettle there, ſends forth Vapours peſtiferous, not only to the Bodies, but alſo to the Minds of Men; the ſpirits being by their means debilitated, the joints emaſculated, the Nerves relax'd, and the Proviſions carried into Magazines and Graineries corrupted with moiſture. If, on the other hand, the Sun can penetrate into thoſe bottoms, the reflection of its Rays will cauſe exceſſive heats; or if it enters not, then a perpetual ſhade will render the People ſtupid, and ſpoil their Complexion. When the winds blow into them they are too impetuous, by reaſon of the narrow chops thro' which they muſt paſs; and when they blow not there, the air ſtagnating of courſe, will become groſs and ſickly. The reſolution being taken therefore to build upon an eminence, let a ſituation be choſen that faces the temperate region of the Air, and that is neither always overſhadow'd by higher Hills, nor ſcorch'd up, as it were, with two Suns, by the reflection of the true one from ſome neighbouring Rock: for in either of theſe caſes, it becomes an inconvenient habitation. Finally, in chuſing a ſituation

for the building of a *Villa*, or Country-houſe, all thoſe conſiderations are requiſite, which are uſed in chuſing the ſituation of a City-houſe: for as the City is but one great Houſe, or Family; ſo every Family, or private Houſe, is a little City.

CHAP. XIII.

Of the Compartments of Country-houſes.

AFTER having found and pitched upon an airy, pleaſant, advantagious and healthy Situation, one muſt think next on the Compartment of the Building, or the diſtribution of its parts, and to make it both elegant and convenient. Two ſorts of Houſes are neceſſary in the Country: one for the dwelling of the Maſter and of his Family; the other for the Farmer, who improves the Land and gathers the Rents, as well as for lodging the Cattle and the Fruits of the Earth. Therefore it will be requiſite to diſpoſe the ſituation of both the Buildings in ſuch a manner, that the one may be no impediment to the other. The Maſter's Houſe muſt be made ſuitable to his Quality, and proportion'd to the number of his Retinue, after the ſame manner as the City-houſes, whereof we have treated before. There muſt be proper covers made for every thing belonging to the *Villa*, in proportion to the product of the ground and number of the Cattle, and contiguous to the main Houſe, that the Maſter may eaſily go every where ſheltered, without being hinder'd from minding his buſineſs by either Snow, or Rain, or the ſcorching heat of the Sun. This will ſerve alſo to ſhelter the Wood, and other numberleſs Country Proviſions, which too much moiſture of the Air, or the heat will ſpoil; beſides, that ſuch *Piazzas* will make the Building look much greater. Regard muſt alſo be had to lodge the Labourers, with all the Country tools and luggage conveniently, and allow them room enough. The Chambers of the Steward, of the Farmer, and of the Labourers, muſt be in a place convenient for them, and near the Gates for the Security of the other places. The Stalls and Stables for labouring Cattle, ſuch as Oxen and Horſes, muſt be far from the principal Houſe, becauſe of the ill ſmell of their dung; but they ought to be in a warm and airy ſituation. All breeding Creatures, ſuch as Hogs, Sheep, Pigeons, Fowls, and the like, require each a place proper to their kind; and in this matter one muſt be ruled by the different cuſtoms of Countries. The Cellars muſt be under ground, very cloſe, and in a dry place, far from all noiſe, moiſture, or any ill ſmell. They ought to receive their light from the Eaſt to the North: becauſe that the Sun ſhining from the other ſides, would be apt to heat, debilitate, and ſpoil the Wine or other Liquors. One muſt give them a little declivity in the middle, upon a cement Pavement, or elſe with ſquare Stones ſo well join'd together, that ſhould the Wine happen to ſpill, one may take it up again. The tubs wherein the Wine is working, muſt be under covert near the Cellars; and be raiſed ſo, that the props may be a little higher than the bung-hole of the Pipes, to the end the Wine may be eaſily carry'd thro' Channels made of Leather or of Wood into the ſaid Pipes.

THE Granaries muſt have their light from the North, becauſe that on this ſide they won't be expoſed to the heats, but rather refreſhed by the Wind; and the Corn will be much better preſerv'd, without being infeſted by the Mice, and ſuch other Vermin as do it a great deal of hurt. One muſt floor the Granaries with excellent Earth; but when ſuch is not to be had, Deals muſt be uſed, becauſe Lime is a great Enemy to Corn.

THE other Store-houſes, on the very ſame account, muſt have their lights to the ſame ſide. The Hay-lofts may be to the South or Weſt; becauſe when the Hay is thus well dry'd by the Sun, there will be no danger it ſhould corrupt and take fire. The tools and implements belonging to Tillage, are beſt under coverts turn'd to the South. The Barns where the Corn is threſhed muſt be expoſed to the Sun, ſpacious, large, upon a firm ground, and a little rais'd in the middle; as round about it, or at leaſt on one of its ſides, there ought to be a *Piazza*, that in caſe of a ſudden Rain, one may immediately ſecure the Corn. 'Tis not proper it ſhould be too near the Maſter's Houſe, becauſe of its duſt; but it ought not to be ſo far from it, but that it may be within his view.

THIS in general is ſufficient concerning the choice that is to be made of the Situation and Compartment of Country-houſes: now, to acquit my ſelf of my promiſe, I ſhall give here the draughts of ſome Houſes, which, according to ſeveral Inventions, I have built in the Country.

CHAP. XIV.

The Draughts of ſeveral Country-houſes built by Noble Venetians.

THE following Houſe* is at *Bagnolò*, within two miles of *Lonigo*, a Caſtle in the *Vicentin*, belonging to the three Brothers, the magnificent Counts *Victor*, *Marco*, and *Daniel Piſani*. On both ſides of the Court are the Stables, Cellars, Granaries, and ſuch other places for the ſervice of the *Villa*. The Columns of the Porticos are of the *Dorick* Order. The Lord's Apartment is in the middle of the Building. The Floor of the firſt Chamber is raiſed ſeven foot above the level of the Ground, under which is the Kitchen, and other places belonging to the Servants. The Hall is arch'd, its height being equal to its breadth, and one half more. The Arches of the Galleries have likewiſe the ſame proportion. The Chambers are ceil'd, and as high as broad; the greateſt are a ſquare and two thirds long; the others are but a ſquare and a half. There was not ſo great regard had in placing the two back-ſtairs, where they might receive a clearer light (as we have order'd in the firſt Book) becauſe theſe Stairs ſerving only for the Offices underneath, or for the Granaries and other like places above, the chief care was to compleat the middle Apartment where the Maſter lodges, as well as Strangers; and the Stairs leading to this Story are very advantageouſly placed, as may be ſeen in the draught. Let this ſerve for a general advertiſement to the prudent Reader, with reſpect to all the other Houſes which have but one Story; becauſe in ſuch as have two fine ones, and well adorn'd, I have taken care to order it ſo, that the Stair-caſes are very lightſome, and in convenient places: I ſay two Stories, becauſe neither what is under ground for Cellars and ſuch

* *Plate* XXXII.

ſuch uſes, nor what is above for Granaries and Garrets, is reckon'd among the principal Stories, as not ſerving to lodge Gentlemen.

THE Houſe following * belongs to the magnificent Lord *Franciſco Badoero* in the *Poleſine*, in a place call'd *la Frata*. 'Tis ſituated upon an aſcent, at the foot of which paſſes a branch of the *Adige*, where a Caſtle of *Salinguera de Eſte*, Brother-in-law to *Ezzelino Romano*, anciently ſtood. All this Building has a Pedeſtal five foot high for its Baſis, at the level of which is the floor of the Chambers, which are all of them ceil'd and painted in *groteſque* of a very fine Invention, by *Giallo Florentino*. The Granaries are above; and the Kitchen, with the Cellars and other conveniencies, are below. The Columns of the Galleries in the body of the Houſe are *Ionick*. The Cornice goes about the whole Houſe like a Crown. The Pediment over the Portico makes a very fine ſhew, raiſing the middle of the Houſe higher than the wings. Afterwards, as one goes downwards, there are the Farmer's and Steward's Habitations, the Stables, and ſuch other places fit for a Country-houſe.

THE magnificent Lord *Marco Zeno* has put the following invention † in practice at *Caſalto*, which is a place near the Caſtle of *la Motta*, in the *Trevigian*. It ſtands upon a baſement, that ſurrounds the whole Building, equal with the floor of the Rooms, which are all arch'd. The height of the largeſt is according to our ſecond manner. The Arches of the ſquare Rooms are grinded in the angles about the Windows: Thoſe of the Cloſets, or Rooms near the Galleries, are *faſciated*, as are thoſe of the Hall. The Hall and Galleries are arch'd of an equal height, and are likewiſe both of them higher than the Rooms. This Houſe has Gardens, a Court-yard, a Dove-houſe, and every thing that is neceſſary for a Country dwelling.

NEAR to *Gambarare*, on the *Brenta*, is the following Building **, which is the Houſe of the magnificent Lords *Nicolo* and *Luigi de Foſcari*. The Houſe is raiſed eleven foot from the level of the ground, and below are the Kitchens, Pantries, and the like places. Every thing is arch'd as well above as below. The Arches of the great Chambers are made after our firſt manner. Thoſe of the ſquares are arch'd round like a Cupola. On the Cloſets are *Mezanini*. The Hall is arch'd half round grinded: its impoſt is as high from the Floor as the breadth of the Hall, which is excellently painted by Meſſer *Battiſta Venetiano*. Meſſer *Battiſta Franco*, one of the beſt draughtſmen of our time, did alſo begin to paint one of the great Chambers, but he died before he could finiſh his Work. The Portico is of the *Ionick* Order. The Cornice goes round the whole Houſe, and makes a pediment above the Portico, as well as on the oppoſite part. Under the Eves of the Roof there is a ſecond Cornice, which paſſes above the pediments. The upper Rooms are like *Mezaninos*, becauſe of the little height they have, which is but eight Foot.

AT *Maſera*, near the Caſtle of *Aſolo*, in the *Trevigian*, is the following †† Houſe, which belongs to the moſt Reverend *Daniel Barbaro*, Patriarch elect of *Aquileia*, and to the Lord *Marco Antonio Barbaro*, his Brother. That ſide of the Building which advances a little outwards, has two ſtories of Rooms. The floor of the higher ones is level with a Court that is behind, where there is a Fountain wrought in the Mount directly over-againſt the front of the Houſe, with an infinite number of Ornaments, both of Stuc and Painting. This Fountain forms a little Lake, which ſerves for a Pond; from whence the Water overflowing,

* *Plate* XXXIII. † *Plate* XXXIV. ** *Plate* XXXV. †† *Plate* XXXVI.

flowing, goes into the Kitchen, and runs afterwards thro' the Gardens, which are on the right and left of the high Road which leads gradually to the Houſe: there it makes two little Ponds, which ſerve alſo for watering-places on the high-way, and running ſtill further, it waters the Orchard, which is very large, and fill'd with excellent Fruit-trees, and all ſort of pulſe.

THE front of the Maſter's Apartment has four Columns of the *Ionick* Order. The capitels of theſe on the angles, face, or ſhow alike on both ſides. I ſhall teach the manner of making theſe capitels in the book of Temples. There are Galleries on both ſides of the Houſe, at the end of which are two Pigeon-houſes; and below them are the preſſes for the Vintage (*at the place mark'd* A *in the plan*) with the Stable, and other neceſſary places for Husbandry.

THE following Houſe * is near the gate of *Montagnana*, a Caſtle in the Territory of *Padua*, and was built by the Lord *Franciſco Piſano*, after whoſe paſſage into a better Life there remain'd part of it unfiniſh'd. The great Chambers are a ſquare and three quarters long; the Arches are ſchem'd, and according to our ſecond manner. The ſecond ſize Rooms are ſquare, and their Arches round or oven-wiſe. The Cloſets, and the Paſſage between, are of the ſame breadth: their Arches are two ſquares high. The Entry has four Columns, a fifth leſs than thoſe which are without; and they ſupport the floor of the Hall: beſides that the height of the Arch is much finer and ſurer with them. The four Niches, which you perceive there, have each a Statue, repreſenting the four Seaſons of the Year, done by *Aleſſandro Vittoria*, an excellent Sculptor. The firſt Order of Columns is *Dorick*, and the ſecond *Ionick*. The upper Rooms are ceil'd. The height of the Hall reaches as far as the roof. On the Flanks of this Houſe, there are two wings, join'd to the Houſe by two paſſages, which lead into the Kitchen and to ſome other Offices; in the middle of each of them there are two arch'd Gates which open into two Streets.

THE following draught † is the Houſe of the magnificent Lord *George Cornaro* in *Piombino*, a place of *Caſtle-franco*. The firſt Order of the Portico is *Ionick*. The ſtair-caſe is as far as well can be into the Houſe, that it may be leſs expoſed to heat or cold. The wings of the Hall, wherein you ſee the Niches, have the third part of their own length in breadth; and the Pillars range with the laſt but one of the Porticos exactly, and are as diſtant from one another as they are high. The great Rooms are a ſquare and three quarters long; the height of the Arches is according to our firſt method of the height of Arches. The ſecond-ſize Rooms are ſquare, and a third higher than broad. The Arches are croſs-grinded. Over the Cloſets are *Mezaninos*, or half Stories. The upper Portico is of the *Corinthian* Order: its Pillars are a fifth part leſs than the lower ones. The Chambers are ceil'd, and above them are ſome *Mezaninos*. The Kitchen, and places belonging to it, are on one ſide; and on the other are places for the Servants.

THE Building of the following draught ** belongs to the moſt illuſtrious Knight *Leonardo Mocenigo*, in a place call'd *Morocco*, on the road from *Venice* to *Trevigi*. The Cellars are level with the ground, and above them are the Granaries on the one ſide, as the Servants Lodgings are on the other. Over theſe are the Maſter's Rooms, forming four Apartments. The Arches of the greateſt are one and twenty foot high, and are made of Canes, that they may be the leſs heavy. Thoſe of the leſſer ones are as high as thoſe of the largeſt; but thoſe of the Cloſets are only ſeventeen foot high, and are croſſed. The Gallery of the firſt ſtory is *Ionick*.

* *Plate* XXXVII. † *Plate* XXXVIII. ** *Plate* XXXIX.

Ionick. In the lower Hall there are four Columns, which make the height and breadth to be proportionable. The ſecond Order of the Portico is *Corinthian*, and its *Poggio*, or Pedeſtal, is two foot and three quarters high. The ſtair-caſes are in the middle, ſeparating the Hall from the Veſtibule: both Stairs are oppoſite the one to the other, to the end that People may go up and come down both ways, which makes them very fine and convenient, beſides that they are light enough. On the wings of this Building are the Wine-preſſes (*mark'd on the Plan* A) with the Stables, Galleries and ſuch like places fit for a Country Family.

At *Fanzolo*, in the *Trevigian*, within three Miles of *Caſtel-franco*, may be ſeen the Houſe of the magnificent Lord *Leonardo Emo*, built according to the following Draught *. The Cellars, Granaries, Stables, and other places for a *Villa*, are on each ſide of the Maſter's Houſe; at each end of which there is a Pigeon-houſe, which, beſides the ornament to the place, brings likewiſe profit to the Owner. People may go under ſhelter every where about this Houſe, which is one of the moſt conſiderable conveniencies that ought to be deſir'd in a Country-houſe, as we have already obſerv'd. On the back of this Building there is a ſquare Garden, which contains fourſcore *Trevigian* Acres; in the midſt of which runs a little River, which renders the ſituation very fine and agreeable. This Houſe is adorned with ſeveral pieces of Painting done by *Battiſta Venetiano*.

CHAP. XV.

The Draughts of ſome Noblemen's Seats on the Terra Firma.

IN a place of the *Vicentine*, call'd *Final*, is the following Houſe †, which belongs to the Lord *Biagio Sarraceno*. The floor of the Rooms is rais'd five foot from the ground. The great Chambers are a ſquare and five eighths long, their height being equal to their breadth, and are all ceil'd. This height is alſo continu'd in the Hall. The Cloſets near the Galleries are arch'd: the height of the Arcnes is equal to that of the Rooms. The Cellars are below, and the Granaries above, being of the ſame extent with the whole Houſe. The Kitchens are without, but ſo near that they are convenient enough: all the other places, neceſſary to a Country-houſe, are on the two ſides of the Building.

The draughts that follow ** are of the Houſe of Signior *Girolamo Ragona*, a *Vicentine* Gentleman, who built it at one of his Lordſhips call'd *le Ghizzole*. This Houſe has the ſame conveniency I have mentioned above, which is, that one can walk every where under covert. The floor of the Maſter's Apartments is raiſed twelve foot above the ground. Under theſe are all the conveniencies for the Houſhold. Above are other Chambers, which may not only ſerve for Granaries, but alſo for Lodgings upon occaſion. The principal ſtairs are in the fore-front, and anſwer directly to the Porticos of the Court.

At *Pogliana*, a place in the *Vicentine*, is the following Houſe *†, belonging to the Cavalier *Pogliana*. The Rooms have been adorn'd with Paintings and very fine ſtuccatures by *Meſſer Bernardino India*, and *Meſſer Anſelmo Canera*, Painters of *Verona*, and by *Meſſer Bartholomeo Rodolfi*, Sculptor of the ſame place. The great Rooms are a ſquare and two thirds long, and arch'd. Over the Clo-

* *Plate* XL. † *Plate* XLI. ** *Plate* XLII. *† *Plate* XLIII.

ſets are *Mezaninos*. The height of the Hall is one half more than its breadth, and is equal to the height of the Gallery. The Hall is arch'd with a *Faſcia*, and the Portico with a croſs-grinded Arch. The Granaries are above all theſe Apartments, as the Cellars and Kitchen are under them; becauſe the floor of the firſt Story is raiſed five foot above the ground. The lower yard, and other places for the uſe of a Country-houſe, are on one ſide of it, and a Garden which anſwers to the yard is on the other ſide. Behind the Houſe is an Orchard and a Fiſh-pond: ſo that this Gentleman, who is magnificent, and of a noble ſpirit, has ſpar'd nothing which he thought might bring ornament or conveniency to this Houſe, in order to make it as fine, delightful, and compleat as poſſible.

AT *Liziera*, a place near *Vicenza*, Signior *Gio. Franceſco Valmarana*, of bleſſed Memory, built the following Houſe *. The Galleries or Porticos are *Ionick*; the Columns are upon a ſquare baſe which ſurrounds the whole Houſe. To the level of this baſement is the floor of the Gallery and Rooms, which are all ceil'd. At the Angles of this Building there are four arch'd Towers; the Hall is alſo arch'd with a *Faſcia*. This Houſe has two Court-yards, the one forwards for the uſe of the Maſter, and the other backwards, where they threſh the Corn. About this Court are coverts, and all other places neceſſary to a Country-houſe.

THE Counts *Franceſco*, and *Ludovico de Triſſini*, Brothers, began the Building of the following † Draught at *Meledo*, a place in the *Vicentine*. Its ſituation is very fine, being on a Hill, that's waſh'd by a little River, in the midſt of a ſpacious Plain, and on a well-frequented Road. On the top of the Hill there is to be a Hall encompaſs'd with Rooms; but rais'd ſo high that it may receive its Light above them. This Hall has ſome demi-pillars, which ſupport a Corridor, to which People enter by the upper Chambers, which ſerve but for the *Mezaninos*, being only ſeven foot high. Under the floor of the firſt Chambers are the Kitchens, Pantries, and ſuch like places. And becauſe every front of the Houſe has a very fine proſpect, there are made four Porticos or Galleries to them of the *Corinthian* Order; above the pediments of which one ſees the Cupolo of the Hall. The Galleries that come round it look extraordinary well. The Hay-lofts, Cellars, Stables, Granaries, the Farmer's Lodging, and other Family conveniencies are lower. The Columns of the Porticos are of the *Tuſcan* Order; and at the corners of the Court near the River are two Dove-houſes.

THIS Building ** is at *Campiglia*, a place of the *Vicentine*, and belongs to Signor *Marſo Repeta*, who finiſh'd it according to the deſign of the late Signor *Franceſco* his Father of bleſſed Memory. The Pillars of the Porticos are of the *Dorick* Order; the intercolumnation is four diameters of a column. In the two remoteſt Corners of the Roof, where one ſees the Galleries, without the main body of the Houſe, there are two Dove-houſes and Galleries. On the ſide towards the Stables are divers Chambers, every one dedicated to ſome particular Virtue, as one to Juſtice, another to Chaſtity, and others to other Virtues, with Elogiums and Pictures appropriated to the ſubject. Part of theſe were done by *Battiſta Maganza*, a *Vicentine* Painter, who is alſo an excellent Poet, and who has done all this deſignedly, that as the Gentleman receives thoſe who viſit him moſt courteouſly, ſo he may lodge every one of his Gueſts and Friends in the Apartment of that Virtue to which he thinks them moſt inclined. In this Building one may go every where conveniently under Piazzas. And ſince the Farm-houſe is of the ſame Order with that of the Maſter's it ſelf, all that this laſt wants in

* *Plate* XLIV. † *Plate* XLV. ** *Plate* XLVI.

in greatneſs by not being more coſtly than the other, is ſufficiently made up to the former, by being equal both in ornament and ſymmetry.

The following Houſe* belongs to the two Brothers, the Counts *Edward* and *Theodore de Thieni*. It ſtands in a place call'd *Cigogna*, where Count *Francis* their Father began to build it. The Hall is in the middle of the Houſe, and round it are ſome *Ionick* Pillars, which ſupport a Corridor which is level with the floor of the upper Rooms. The Arch of this Hall reaches to the Roof. The great Rooms are arch'd with a *Faſcia*, the ſquare ones Oven-wiſe, and are raiſed in ſuch a manner, that they form four little Turrets on the angles of the Building. The Cloſets have *Mezaninos* above them, whoſe doors are over-againſt the middle of the Stairs, which have no Wall in their middle: and as the Hall, by receiving its light from above, is extraordinary lightſome, theſe *Mezaninos* are alſo ſufficiently light; and by ſo much the more, as they have their light from the top, being open in the middle. The Cellars and Granaries are in one of the cover'd ſides, or Arches of the yard; and in the other are the Stables, with the other places ſerving for Country uſes. The two Galleries that make as it were the two arms of the main Building, ſerve to unite the Farmer's Houſe to that of the Maſter. There are two yards with Porticos, the one ſerves to lay up the crop, the other to lodge the Husbandmen and their Servants.

The following Houſe† belongs to Count *Giacomo Angarano*, who built it in his Lordſhip of *Angarano*, a place in the *Vicentine*. On both ſides of the Court are the Cellars, the Granaries, the Wine-preſſes, the Farmer's Houſe, the Stables, with the Dove-houſe; and beyond there is on one ſide a Court or Yard for the Country neceſſaries, and on the other ſide a Garden. The Maſter's Houſe is in the middle, all the firſt ſtory of it being arch'd, and the ſecond ceil'd. The Cloſets, both above and below, have *Mezaninos*. The *Brenta*, a River very plentiful of excellent Fiſh, runs near this Building. The place is famous for its delicious Wines and Fruits, but more eſpecially for the courteſy of its Lord.

The following draughts** are of Count *Ottavio Thieni*'s Houſe, in a place call'd *Quinto*. This Building was begun by Count *Marc Antonio* his Father, of happy Memory, and by Count *Adriano* his Uncle. The ſituation is very fine, for it has the *Teſſina* on one ſide, and a pretty large branch of the ſame River on the other. This Palace has a Gallery before its Gate of the *Dorick* Order, thro' which one paſſes into another Gallery; and from that into the Court, which has alſo two Galleries in its wings, at the end of which are all the Rooms and Apartments, of which ſome have been painted by *Giovanni Indemio*, a *Vicentine*, and a very ingenious Man. Over againſt the Portico of the entry there is another Gallery exactly like it, which brings you to an *Atrium* with four Pillars, and ſtrait forwards to a Court whoſe Porticos are of the *Dorick* Order. It ſerves for all the uſes of the *Villa*. There is no principal ſtair-caſe, that has any proportion to the reſt of the Building; becauſe the upper part of this Houſe ſerves only for Wardrobes, Stores, and Lodgings for the Servants.

At *Lonedo*, a place in the *Vicentine*, is the following Houſe††, belonging to Signor *Girolamo de Godi*. It is ſituated on a little Hill that has a very fine proſpect, near a River that furniſhes it with Fiſh. To render this ſituation proper for Country purpoſes, they have made yards and paſſages ſupported by Arches at a very conſiderable Expence. The Maſter's and Family's Apartment is in the middle of the Building. The floor of the Chambers is raiſed thirteen foot from the level of the ground, and they are ceil'd. The Granaries are above; and below under

* *Plate* XLVII. † *Plate* XLVIII. ** *Plate* XLIX. †† *Plate* L.

under the raiſing of the thirteen foot, are the Cellars, Kitchens, places to make Wine, and other neceſſary conveniencies. The height of the Hall is to the very roof, and it has two rows of Windows. At each ſide of the Houſe there are great yards with coverts, ſerving for Country uſes. The Houſe is painted with great nicety by Meſſer *Gualterio Padoano*, Meſſer *Battiſta del Moro* of *Verona*, and Meſſer *Battiſta Venetiano*: for this Gentleman having a mind to make his Houſe as perfect as poſſible, and having himſelf no ſmall judgment, ſpar'd no coſt to get the moſt excellent Workmen and Artiſts of our time.

AT *Santa Sophia*, a place within five Miles of *Verona*, is the following Houſe *, which belongs to Count *Marc Antonio Sarego*. Its ſituation is on a very fine Hill of a moſt eaſy aſcent, between two Valleys, from whence one ſees a great part of the City. Round about are ſeveral other Hills very agreeable to the Eye, and abounding with excellent Waters, whereby the Houſe and Garden are adorn'd with ſeveral admirable Fountains. By reaſon of its agreeableneſs, this place was formerly the delight of the Lords *de la Scala*; and we may alſo judge, by ſome old Ruins which are found there, that in the time of the ancient *Romans* it was in great eſteem. That part of this Building which ſerves for the Maſter's Apartment and his Family, has a Court wholly ſurrounded with Porticos. The Pillars are of the *Ionick* Order, and coarſly wrought, as ſeems to become a Country-houſe, to which nice and finiſh'd Works bear not ſo true a reſemblance as plain and natural ones. Theſe Pillars ſupport the Cornice, which makes the Gutters that receive the Rain that falls from the top of the Houſe; and behind are ſome pilaſters under the Porticos, that bear the floors of the ſecond ſtory. In this ſame ſecond ſtory are two Halls over-againſt one another, the largeneſs of which may be ſeen in the draught † by the lines that go croſs each other, and are carry'd on from the further Walls to the Pillars. Near this Court is the Farmer's Yard, where there are on both ſides all the coverts neceſſary for Country matters.

THE following ** is the Houſe of Count *Annibal Sarego*, in a place of the *Collogneſe* called *la Miga*. The whole Building is raiſed on a Pedeſtal or Baſement four foot and a half high; level to which is the floor of the firſt Chambers; under which are the Cellars, Kitchens, and other Places for the Lodgings or other uſes of the Family. The firſt Chambers are arch'd, and the ſecond ceil'd. The Farmer's yard, with all the Country conveniencies, is near the Houſe.

* *Plate* LI. † *Plate* LI. ** *Plate* LII.

CHAP.

CHAP. XVI.

Of the Country-houſes of the Ancients.

HITHERTO I have given the draughts of ſeveral Country-houſes done by my direction: it remains that I now give you ſome * after the manner of the Ancients, according to what *Vitruvius* has deliver'd; for in theſe you may ſee all the places belonging to the Lodgings, and the conveniencies of the Country, turn'd to the regions of the Heaven that are moſt proper. I ſhall not here inſiſt upon what *Pliny* ſays about this Subject, my deſign being only at preſent to explain what *Vitruvius* ſays[a] of it. The principal front of the Building is turn'd to the South, and has a Gallery, from which one enters by a paſſage into the Kitchen, which receives its light above the places adjacent, as it muſt have the Chimney in the middle. On the left-hand ſide are the ſtalls for the Oxen, the manger whereof muſt be turn'd to the Eaſt. The Bagnios muſt alſo be on the ſame ſide, and at the ſame diſtance from the Kitchen as from the Gallery, becauſe of the room they require. On the right-hand you have the Oil-preſſes, and other places for the Oil, which anſwer the places of the Bagnios, and are turn'd to the Eaſt, South and Weſt. The Cellars are backwards, far from all noiſe, and open to the North for fear of the Sun. The Granaries are above and receive the ſame light, and the ſame way as the Cellars do. On the right and left ſides of the Court are ſtalls for the Cattle, ſtables for the Horſes, conveniencies for Sheep and other Animals; with Hay-lofts and Barns to put the Straw in, as well as Bake-houſes, all which muſt be as far from any Fire as may be. The Maſter's Habitation is backwards, the principal front of which is oppoſite to the Farmer's Houſe; ſo that in theſe Country Buildings the Halls are always in the back part. All the ſame things were obſerv'd in theſe, whereof we have ſpoken above, in giving the draughts of the private Houſes of the ancients, which is the reaſon why I have had no regard now but to what purely concerns the Country. In all the Buildings which I have made in the Country, and alſo in ſome of thoſe in Towns, I have always placed the Pediments before, where the principal Gates are; becauſe they make the principal entry to the Houſe more obſervable, and contribute very much to the magnificence and nobleneſs of the Building. This gives the fore-part a great advantage over the others, and therefore it muſt be made higher; beſides that it is much properer to put there the Arms of the Owner, which are commonly placed in the middle of them. The ancients employed them alſo in their works, as is to be ſeen in the old remains of Temples and other publick Buildings; from which 'tis probable, as I have obſerved in the Preface to my firſt Book, that they borrow'd the contrivance and proportions of private Houſes. *Vitruvius* in the laſt Chapter of his third Book, teaches us how to make them.

* *Plate* LIII.

[a] *Scamozzi* intirely diſlikes this Deſign of *Palladio*, and he has made one in his Book as far in my opinion from *Vitruvius* as this; and *Vitruvius* ſays, that in private Buildings it is proper to talk with Moderation of any part of publick Buildings. Beſides, he gives here only a general Deſcription of placing the Parts for Uſe and Decorum. *Scamozzi* puts the Kitchen in the back part of the Houſe, and not in the Courts; which is againſt the Text of *Vitruvius*, alluding more to an Epiſtle of *Pliny*.

CHAP. XVII.

Of ſome Inventions ſuited to different ſituations.

MY firſt intention was not to write but of thoſe Buildings only that were brought to their perfection, or at leaſt ſo far advanc'd, that one could ſoon hope to ſee them finiſh'd: but having obſerv'd, that it is often neceſſary to confine one's ſelf to the ſituation, and that one has not always free room to build, I have thought it would not be amiſs to add to my former draughts ſome new inventions of my own (which were deſir'd of me by ſeveral Perſons of Quality, tho' ſome alterations in their affairs have obſtructed the execution) becauſe the irregularity and difficulty of their ſituation, and the method I have obſerved to contrive the Chambers and other places, ſo as to be correſpondent and proportionable to each other, may, in my opinion, prove of no little uſe and advantage.

THE ſituation of this firſt draught * is of a pyramidal form: the baſis of the Pyramid makes the principal front of the Houſe, which has three Orders of Pillars, *Dorick*, *Ionick*, and *Corinthian*. The *Veſtibule* is ſquare, and its Arch, the height and breadth whereof is equal, is ſupported by four columns. On the one and the other ſide are two Chambers, whoſe length is a ſquare and two thirds, and they are arch'd after our firſt way. They have every one a Cloſet, with a ſmall Stair-caſe to go up to the *Mezaninos*. At the end of the entry I had placed two Chambers a ſquare and a half long, with two Cloſets near them of the ſame proportion, which would alſo have had their ſtairs to the *Mezaninos*: and farther, I contriv'd a Hall of a ſquare and two thirds long, with columns equal to thoſe of the *Veſtibule*. Next to this there had been a Gallery, on both ſides of which I would have placed two out-ſtairs, and farther on a yard, in one ſide of which ſhould be the Kitchen. In the ſecond ſtory the Chambers were to be twenty foot high, and thoſe of the third eighteen: but the height of each of the Halls was to be quite to the Roof, and level with the Chambers of the ſecond ſtory; the Halls would have had ſome Balconies, or Corridors, wherein to place Perſons of diſtinction at the time of Feſtivals, Banquetings, or ſuch like diverſions.

I MADE the following draught † for a ſituation in *Venice*. The principal front has three Orders of columns, the *Ionick*, the *Corinthian*, and the *Compoſite*. The *Veſtibule* advances a little outwards, and is adorn'd with four columns, equal and like to thoſe of the front. The Chambers, which are on the wings, are arch'd after our firſt method. Beſides theſe, there are other Chambers that are ſmaller, and Cloſets with ſtairs to go up to the *Mezaninos*. At the end of the entry one goes thro' a paſſage into a ſecond Hall, which on one ſide has a little Court, by which it receives its light, and on the other the principal Stair-caſe of an *Elliptical* form, and open in the middle, with columns all round, that ſupport the ſteps. Farther on you have another paſſage whereby to enter into a Gallery, the columns of which are *Ionick*, and equal to thoſe of the *Veſtibule*. On each ſide of this Gallery there is an Apartment like thoſe at the entry, but that on the left hand is in a place which contracts it a little more. Hard by there's a Court adorn'd quite round with columns, which form a Corridor, that ſerves for the Apartment

* *Plate* LIV. † *Plate* LV.

Apartment of the Women, wherein they cook, and which therefore ſhould be backwards. The upper part is like the lower one, except the Hall; which is above the entry, has no columns, and is raiſed to the roof, having a Corridor that is level to the Chambers of the third ſtory, and might alſo ſerve the upper Windows, becauſe this Hall has two Rows of them. The floor of the leſſer Hall will be of the ſame height with the Arches of the ſecond Chambers, theſe being twenty three foot high. The Chambers of the third ſtory are eighteen foot high, and ceil'd. All the Doors and Windows would be directly perpendicular over one another, and each Wall would bear its ſhare of the weight, were the deſign executed. The Cellars, Laundries, and other Offices, would have been under ground.

Some time ago I made the following draught *, at the requeſt of the two Brothers Count *Franciſco* and Count *Lodoico de Triſſini*, for a place they had in the City of *Vicenza*; according to which the Houſe would have had a ſquare *Veſtibule*, divided into three ſpaces by rows of *Corinthian* columns, to give more ſtrength and proportion to its Arch. On the Wings would have been two Apartments, with ſeven Rooms in each, including three *Mezaninos*, for which the ſtairs, which are next the Cloſets, would have ſerv'd. The height of the great Rooms was to be twenty ſeven foot; that of the leſſer, and leaſt of all but eighteen. Farther in you would have found a Court, ſurrounded with Galleries of the *Ionick* Order. The columns of the firſt floor of the fore front were alſo to be *Ionick*, and equal to thoſe of the Court; thoſe alſo of the ſecond floor were to be *Corinthian*. The Hall would have been wholly free, of the ſame bigneſs with the *Veſtibule*, and raiſed up to the roof; and level to the floor of its *Soffita* there would have been a Corridor. The great Rooms would have been ceil'd, but the leſſer and ſmalleſt ones arch'd. The Womens Apartment, with the Kitchen and the like Offices, were to be on one ſide of the Court; as the Cellars, a place for firing, and the reſt of the Houſhold conveniencies, were to be under ground.

This other invention † was for Count *Giacomo Angarano*, who had alſo a ſpot of ground in the ſame City. The columns of the front are of the *Compoſite* Order. The Chambers on the ſide of the Entry are a ſquare two thirds long. Cloſe to them there is a Cloſet, with a *Mezanino* above it. After this, you paſs to a Court ſurrounded with *Porticos*, the columns whereof are thirty foot, with Pilaſters behind them (which *Vitruvius* calls *Paraſtates*) to ſupport the floor of the ſecond Gallery, upon which there is yet another open one, level with the higheſt floor of the Houſe, rail'd all round. Farther in, you find yet another Court, ſurrounded alſo with *Porticos*; the columns of the firſt Order of which are *Dorick*, and of the ſecond *Ionick*. The ſtairs are in the Court, and oppoſite to them are Stables, where might alſo be placed the Kitchen and the Servants Lodgings. As to the upper part, the Hall ſhould have been without columns, and its ceiling muſt have reach'd to the roof of the Houſe. The Chambers would have been equally high and broad, having Cloſets and *Mezaninos* like the lower ones. One could make a Corridor upon the Columns of the fore-front of the Houſe, which might be very convenient on ſeveral occaſions.

In *Verona*, on a very fine ſituation called *Gli Portoni della Brà*, Count *Gio Battiſta della Torre* had a mind to build according to the following draught **. The Houſe was to be adorn'd with Gardens, and all manner of imbelliſhments that can make a place convenient and delightful. The firſt Rooms were to be arch'd,

* *Plate* LVI. † *Plate* LVII. ** *Plate* LVIII.

arch'd, and above all the little ones would have been *Mezaninos*, with ſmall ſtairs to go up to them. The Chambers of the ſecond ſtory were to be ceil'd. The height of the Hall was to be as far as the roof, and level with the floor of the *Soffit* would have been a Corridor or Balcony. It was to receive its light from the Gallery; and from the Windows it was to have on the wings.

I HAD alſo given to Signior *Gio. Battiſta Garzadore*, a *Vicentine* Gentleman, the following draught *, in which there are two Galleries after the *Corinthian* Order, the one before and the other behind. Theſe Galleries have their *Soffits*, and the lower Hall alſo, which is in the inner part of the Houſe; that during the Summer they may be cool there, and it has further two rows of Windows. Its *Soffit* is ſupported by four columns, which likewiſe ſupport the floor of another ſquare Hall that is above it, but without columns. It is almoſt as high as it is broad, and indeed only higher, as the Cornice is in thickneſs. The Arches of the great Rooms are raiſed after our third method, and thoſe of the Cloſets are ſixteen foot. The upper Rooms are ceil'd. The columns of the ſecond Galleries are *Compoſite*, and a fifth part leſs than the lower ones. Upon theſe Galleries are *Frontons*, which give, as I have already ſaid, a great air and nobleneſs to a Building, making it appear higher in the middle than on the wings; beſides that, they alſo ſerve to contain the Arms of the Family.

THE illuſtrious Signor *Leonardo Mocenigo* deſir'd I ſhould make the following draught † for a ſpot of ground he had on the *Brenta*. Four Galleries, of a quarter of a circle each, like the Arms of the Houſe, ſeem to accoſt and embrace all thoſe that come towards it. The Stables are on the ſides of theſe Galleries, in the fore part, that looks to the River; and the Kitchen, with the Farmers and Husbandmens Apartments, are on the back part, taking up alſo the ſides. The Gallery, which is in the middle of the fore-front, is after the *Pycnoſtyle* manner, that is to ſay, that the columns are very thick, and near one another; and becauſe theſe columns are forty foot high, they have ſome pilaſters behind them, that are two foot broad, and a foot and three inches thick, which ſupport the floor of the upper Gallery. Further one finds a Court ſurrounded with Galleries after the *Ionick* Order. The *Porticos* are as broad as the Pillars are high, excepting only one diameter of a column. The Galleries and the Chambers that look towards the Gardens, are alſo of the ſame breadth, to the end that the Walls, which make the ſeparation of every Apartment, may be directly in the middle, to bear the weight of the roof. The firſt Chambers would be very convenient Dining-rooms, if there ſhould happen to be great Company in the Houſe. They are of a double proportion. The Chambers on the angles are ſquare, and are arch'd with a *Faſcia*. The Impoſt is as high as the diameter of the Chamber, and the Arches are a third part of their breadth in height. The Hall is two ſquares and a half in length: columns are plac'd in, that they may make the length and breadth proportionable to the height; and theſe columns ſhould have been only in the lower Hall, that the upper one might be altogether free and agreeable. The columns of the Galleries above the Court, are a fifth leſs than the lower ones, and are *Corinthian*. The upper Rooms are as high as they are broad. The ſtairs are at the end of the Court, and go up each a contrary way to the other.

WITH this draught I ſhall, God be praiſed, finiſh theſe two Books, wherein I have endeavour'd with all poſſible brevity, to put together, and to teach moſt clearly,

* *Plate* LIX. † *Plate* LX.

clearly, as well by Words as by Draughts, all tho ſe things that I have thought the moſt neceſſary and important in the Art of Building well; and more particularly with reſpect to private Houſes, which are to be beautiful and magnificent, convenient for the Owner, and creditable for the Builder.

REMARK.

I KNOW not the reaſon why this plate was not inſerted by* Palladio, *in ſome part of his Book, among his other draughts of private Houſes, ſince it appears manifeſtly, that it comes from the ſame hand with all the reſt, and that 'tis probable it was not deſign'd for any other purpoſe; if it be not, perhaps, that the Graver did not finiſh it time enough for the Printer, as we have ſeen above, page* 47, *that the like has happen'd once before. But be this how it will, the draught deſerves a place here. Yet that it may be diſtinguiſh'd as adopted, or rather a poſthumous piece of this our Author, I have ſingulariz'd it by a different Character, and give it the laſt place, to avoid breaking in upon the order of the Book: beſides that this plate, with two others of the ſame Author, (which are the plan and elevation of the* Dorick *Temple, that I reſerve for the concluſion of this work) were found among the reſt, that were ſent from* Venice *to Mr.* de Chambray *at* Paris, *who firſt inſerted them in his* French *Tranſlation, from whence I took it.*

* *Plate* LXI.

The END of the Second Book.

NOTES and REMARKS of INIGO JONES upon the Plates of the Second Book of *PALLADIO*'s Architecture:

Taken from the Manuſcript of the ſaid INIGO JONES, in the Library of *Worceſter*-College, *Oxford*, *June* 23, 1741.

PLATE II. A. The Ranging or Continuation of the Baſe between the Columns left off, and the Ruſtic continued to the bottom of the Baſe, I do approve of, being well judged.

B. The Ruſtic Coings of this Building agree well with the Ruſtic of the Front.

PLATE III. The hither part of this Building to the prick'd Line is finiſh'd, but the reſt have ſome part of the Baſement up only. If this Building had been finiſh'd, it would have been a very magnificent Palace.

B. The Columns are of Brick, the Soffita is of Wood-work.

PLATE IV. The *Ionick* Columns are $\frac{1}{7}$ part leſs, than the *Dorick* Columns under them.

A. The Rail and Banniſter is ſet in one Width, the Wall and the Jambs of the Windows, with the Seal of the Mold, ranges all along the Pedeſtal; and the Banniſters ſtand directly on the top of the *Dorick* Cornice.

B. The Plinth has only the upper Members of the Baſe of the double Columns, and does agree with the reſt of the Pedeſtal.

PLATE V. A. This Houſe has two Fronts and two Entries in two different Streets.

B. Are the largeſt Rooms by the Entrance, and are arched; the other Rooms are likewiſe arch'd of the laſt manner of arching, and the upper Rooms are arched a Botte.

All the Rooms of the two principal Stories are adorn'd with Stucco and Painting.

C. The Hall at the Entrance is arched a Crochiera upon four Columns, for more Strength and for ſupporting the Arches.

E. Paſſages into the Court. H. The Court has a Portico round it, the Columns are 36 Feet 6 Inches high, which is the whole height of the principal Story.

F. Are the Stables.

G. The principal Stair-caſe is placed under the Portico, in the middle of the Court.

H. The Court is not finiſh'd, but only as far as to the prick'd Line; and the reſt of the Front within is entirely finiſh'd.

PLATE VI. B. The Windows are adorn'd with Statues and Feſtoons, exactly as in the Plate; and the Wall of this Story is not Ruſtic, but richly adorn'd.

The Ruſtic of this under Story is very neatly done.

PLATE VII. The way of the Scamilli Impars from thoſe Balluſtrades is ſet in as much as the Projection of the Baſe even with the Pedeſtal.

This is the part of the Periſtylos but not yet done.

The Square over the Modilions of the Rail is juſt in the middle of the Columns.

PLATE IX. This *Grecian* Hall doth anſwer well; for I ſaw one of theſe Halls finiſh'd.

A. All this Part is old Wall.

From B to C, this part is all finiſh'd.

D. Old Portico.

The fore-part of this Houſe is not begun; the old Building ſtands.

E. The Coings are all of rough Bricks.

F. The other Pilaſters are of Stone.

I have obſerved that the Stucco or Finiſhing which covers the Brick Columns is made with Marble Duſt, and the Stucco that they uſed within Doors is made of Mortar only.

PLATE X. A. The Architrave, Freeze and Cornice is of Stone.

B. Theſe two Capitals were carved by *Palladio*'s own Hands, as the Maſons at *Vicenza* told me.

C. The Leaves or linging of the Capitals are not carved.

D. The Ornament in the Freeze is omitted.

E. Theſe Pilaſters are very flat.

F. The *Ionick* Columns to the Windows are $\frac{1}{7}$ round.

G. The Ruſtic Bozzi or Square projects out from the Columns two Inches, which makes it to be perpendicular with the Projection of its Baſe.

H. A flat Ruſtic, or rather cut Ruſtic, to be imitated.

I. Between the Wave of the Cornice of the Pediment of the Windows and Pilaſter; E. is $\frac{1}{7}$ of the ſame Pilaſter, which makes the return of the Angle Pilaſter.

K. The Windows of the Baſement Story are of rough Ruſtic Work.

Scamozzi and *Palermo* ſaid, that theſe Deſigns were of *Julio Romano*, but adjuſted by *Palladio*; and ſo it ſeems.

PLATE XII. Theſe Stairs A. have Columns that ſupport the ſloped Arch a Crochiera; and between the Columns you may look down, and on each Column are Torches ſet up to light the Stairs.

As far as the prick'd Line the Building is new, and the reſt is old.

The Paſſages are arch'd a Mezza botte.

To this Stroke it is of Stone, and all the reſt of Bricks.

PLATE XIV. A. The great Rooms which are paved of Shocca of ſeveral Deſigns or Compartments.

B. The ſmall Rooms are arch'd a Mezza botte, and painted in Groteſco.

There is four Wood Stair-caſes in the four Corners of the Hall; two of which are

are triangular, and the other two are round.

Throughout this Houſe I did perceive no manner of Cracks nor Settlements; but it ſtands very ſolid and firm.

A great Sum of Money muſt have been ſpent in building of this Houſe, and eſpecially for the Terraces.

PLATE XV. This Lanthorn D. at the top of the Cupola is not ſet on; but a Net to cover the top Hole to keep out the Flies.

E. The Tyling does not look well, conſidering the Richneſs of the Statues, and Beauty of the Building.

C. The Columns are of Bricks, except their Baſes and Capitals, which are of Stone.

PLATE XVIII. A. This Freeze is inrich'd with Heads and Feſtoons.

B. This Freeze is inrich'd with Boys and Foliage.

C. The Compartments of Flowers over the Windows are made of Stucco; ſo much Stucco on the out-ſide does not well.

PLATE XX. A. The Breadth of this Atrium is $\frac{1}{2}$ of its Length.

C. The Tablino is $\frac{2}{3}$ Parts of the Breadth of the Atrium, and Square beſides the two Half-circles.

E. The Portico is as wide as the Height of the Columns.

G. The Courts are $\frac{1}{3}$ longer than they are large.

PLATE XXI. D. The uncovered Gallery or outſide Paſſage, which leads to the Stairs and brings you up into the Rooms at right and left.

PLATE XXII. A. Logia. B. Refectorio. C. Calizola Scoperta. D. Vault Sotto Sefta a Faſcia. E. Moſt of theſe Walls are 2 Bricks and $\frac{1}{2}$ thick.

F. So far as this is finiſhed; the reſt is not finiſhed, by reaſon of the great Expences one of the Fathers told me, that each Arch of the Periſtylo would coſt a thouſand *Venetian* Ducati, meaning throughout finiſhed with Inrichments. The Atrio is finiſh'd, the Columns are of Bricks, with red Stucco; the Baſe and Capitals are of Stone, the Roof of the Gallery above the Entablature is of Timber, and was paved with Bricks; but by reaſon of the Rains paſſing thro' they have been obliged to make another Roof to the top of the Building, and ſupported by Pilaſters, and covered with Tyles; ſo that about the Opening of the Atrio above is a covered Terrace to walk on.

All this Building is of Brick, and the Ornaments of Stone; on the ſide of the Periſtylos is done clean, and the Coings; the oval Stairs are excellent; and the Rail of the Stairs is up to the top.

The open oval Stairs with a Rail and Baniſter of Stone upon the Steps is extreamly well executed.

PLATE XXIV. A. B. Shews the Dripping of the Pavement of the Terrace.

B. Shews likewiſe, that this Plinth is raiſed over the hinder part of the Cartooch, as you will find or ſee in the Profile of the Cornice.

C. The Sfondati to the Ovolo are all in one without the Corona, and the Cartooches are turned into a Corona, with a Cimaſia and a Wave.

The Baſes and Capitals of the Columns are of Stone and the Columns of Bricks, and the Freze of Wood.

PLATE XXVI. L. The Windows that give Light to the Atrio has a Rail to prevent the People's falling in that are walking upon the Terrace M.

PLATE XXVII. A. In this Deſign the Cornice of the Sfondati in the middle and ſides of the Hall are all of one height, which it ſhould not be.

B. The middle Space from Column to Column is as wide as it is high.

C. Is the Plan of the Hall, of a perfect Square.

PLATE XXVIII. A. This ſquare Faſcia does well between the Columns; its Projection takes but little room.

B. The Baſe has only the Fillet and upper Boultel of the Columns.

PLATE XXIX. A. This *Corinthian* Hall is in height from the Ground to the prick'd Line as much as it is broad, and the Arch is in height $\frac{1}{3}$ of the breadth of the ſaid Hall.

PLATE XXX. The upper Columns are half round, and they are $\frac{1}{4}$ ſhorter than the under ones, and have Windows between the Columns.

A. An uncovered Terrace to walk round the Hall, and for the Windows to receive Light from it.

B. The Baſement round the Hall at the top of the Cornice ſtands upon Half-columns, perpendicular with the Columns underneath.

The Joining of the Stone in the Architrave, Freeze and Cornice, is as well as in the Soffita.

PLATE XXXI. R. The *Grecian* Hall and Library S, are one Square and an half long, beſides the two half Circles; and longer I do not fancy them.

The two $\frac{1}{2}$ Circles are $\frac{1}{4}$ part of the length of the Hall R, and Library S.

The Receſſes in this Hall are made at pleaſure.

PLATE XXXII. A. The Hall is arched a Crochiera or Groin, and is one and an half as high as it is wide; and alſo this is the Lodge.

B. The Stair-caſe that ſerves the upper and under Rooms, are not ſo well as they might have been; but the principal Stairs C, are exceedingly well placed.

D. The Columns of the Portico are of the *Dorick* Order; the middle part of the Building F, is for the Lord of the Houſe.

E. On both ſides of the Court are the Stables, Cellars, and Granaries.

G. The Baſement is 7 Feet high from the Ground, and in it is the Kitchen and other Offices.

The Rooms are a perfect Cube.

The largeſt Rooms are 1 Square and $\frac{1}{3}$ in height, and the other Rooms 1 Square and $\frac{1}{2}$.

The Invention of this Portico is taken from the Temple of *Trevi*, Plate 75.

I have made a general obſervation, that all the Buildings following are but of one Order, the Stair-caſes are generally the

ſame;

ſame; but to the Building of the two Orders, which are adorn'd, the Stair-caſes are to be lightſome and commodiouſly placed.

PLATE XXXIII. A. The Columns of the Lodges are of the *Ionick* Order.

B. The Frontiſpiece of the Portico looks very well, and makes the middle part of the Houſe more in height than the two ſides.

C. The Cornice with the Corona ranges all round the Building.

D. The Pedeſtals are 5 Feet high, and ſerve for a Baſement round this Building; and at the top of this Baſement is the Floor of the Rooms, which Rooms have all a flat Ceiling.

Above this is the Granary, and underneath is the Kitchen and other Offices.

PLATE XXXIV. A. The ſmall Rooms near the Lodge are arch'd a Faſcia.

E. The great Rooms are high, according to the ſecond manner of arching.

C. The ſquare ones have the Lunette in the Angles over the Windows.

D. The Hall is likewiſe arched a Faſcia.

B. The Arch of the Lodge is as high as the Arch of the Hall, and both are as high as two Storys.

F. The Baſement all round the Houſe, and all the Rooms are arched.

PLATE XXXV. This Building riſes from the Ground 11 Foot, and underneath is the Kitchen and other Offices; all the Rooms below and above are arched.

PLATE XXXVI. The Fountain A. is cut out of a Rock. The Pavement of the firſt Story is even with the Court B.

C. The Front, has four Columns of the *Ionick* Order with their Architrave, Freeze, Cornice and Pediment.

D. The *Ionick* Capitals of the two Angle Columns have two Fronts. See Lib. 4. Plate 37.

E. This Building has two Stories.

PLATE XXXVII. The ſmall Chambers and out-ones are of an equal breadth, and the Arches are two Squares in height.

PLATE XXXVIII. The Stair-caſes A. are put in the hindermoſt part of the Houſe, to avoid Cold and Heat.

PLATE XXXIX. The great Chambers B. are 21 Foot high, and arch'd with Reeds for Lightneſs.

PLATE XLIV. A. This Lodge not begun. B. This Lodge not finiſh'd. To the prick'd Line the Lodge is begun, the Architrave is of Wood, and the Columns of Bricks; the Building being finiſh'd low, I do not ſee how it could have been finiſh'd with the upper *Corinthian* Columns, I dare ſay this was done without the Conſent of the Architect.

PLATE XLV. The circular Lodge looks well, by reaſon that the Cupolo is ſeen above the Pediment of the Portico.

PLATE XLIX. The Gentleman that owns this Houſe did uſe me exceeding kind, and he himſelf went with me and ſhew'd me all the Building.

This Houſe is finiſh'd to the prick'd Line A.A. and no more; all the reſt is old Building.

B. The great Lodge ſhould have been arch'd a Mezza botte.

C. There is none of this Houſe or *Villa* that is rais'd in the Wings ſo high, but only this; becauſe the principal Front was not ſeen to the Road.

D. This Lodge receives its Light at the Ends and over the Roof of the lower Buildings.

PLATE L. *Scamozzi* has imitated this Villa. See Fol. 281.

PLATE LI. A. This Interſecation of the two Lines ſhews the Bigneſs of the great Rooms over the under ones.

B. Theſe Ruſtic Columns are ſuitable for this Villa.

PLATE LII. A. Theſe double Columns are better than if it ſhould have been one Column and a Pilaſter, as I have often ſeen uſed in Buildings.

PLATE LIII. A. The putting out of the Landing-place of the Stairs farther than the Range of the Rooms is to make them eaſy and light; this Method ſhould be imitated by all Architects.

PLATE LIV. This Deſign of *Palladio* never was put in execution, but drawn by the Requeſt of ſome of his Friends.

It is a hard thing in ſuit of the Difficulty to accommodate the Chambers and other Places, that they may have Proportion and Correſpondence one with another.

PLATE LV. Cellars and other Magazines of this Houſe were placed under ground. This is a Method never to be imitated. The Apartments that has pitch'd Roofs, the Giblins are to be at the narrow Ends of the Building.

This Palace is from the Ground to the top of the upper Cornice 68 Foot 6 Inches in height of the *Venetian* Feet, and 79 Foot 7 Inches *Engliſh* Feet. The *Corinthian* Order is $\frac{1}{6}$ part ſhorter than the *Ionick* Order underneath, and the *Compoſite* Order is alſo $\frac{1}{6}$ ſhorter than the *Corinthian*.

All theſe Obſervations *Scamozzi* and *Braggadocio* make their own.

PLATE LVI. Where is mark'd A in the Plan are Chimney-pieces.

PLATE LVII. The Pilaſters behind the Columns are call'd by *Vitruvius* Paraſtice, Lib. 3. Cap. 1.

PLATE LVIII. A. The large Windows are placed at the Ends of the Houſe, to give light to the Hall; beſides the Light from the Portico.

B. The Architrave and Freeze converted into a Faſcia looks well; beſides, ſaves Expences.

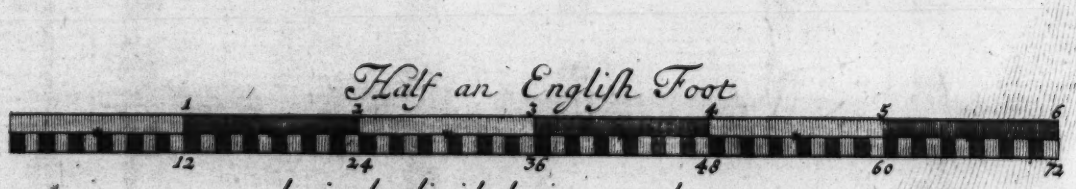
PLATE LX. A. The Portico or Lodge is of Picnoſtilos, with Paraſtice. This Villa is otherways order'd; for I ſaw it, and it is leſs; and as far as I can remember, the circular Lodges I have not ſeen.

Meta del Piede Vicentino

Diviso in sei oncie; ed ogni oncia in dodeci minuti.

Demi-pié de Roy

Divisé en six pouces et chaque pouce en douze lignes.



Half an English Foot

each inch divided into twelve parts.

SCIENCES
22 OCT 75
MUSEUM

Tav. 9.

Piè. 1/4

Piè. 1/4

Piè. 32.

Piè. 32.

Cucina

Piè. 32.

17

B

I. Leoni del.

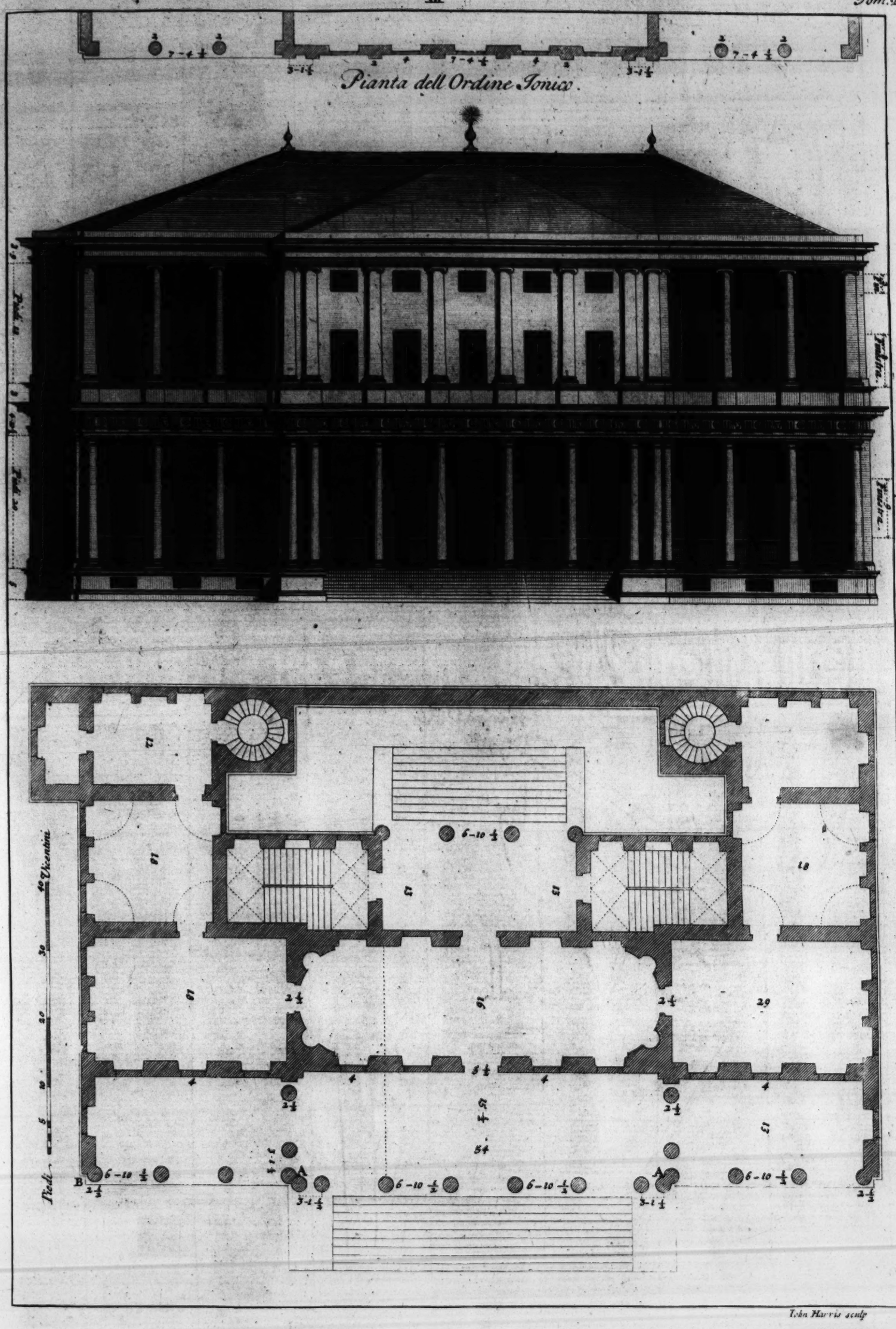
M. I.e Gaehr Scul.

RECEIVED
22 OCT 75
LIBRARY

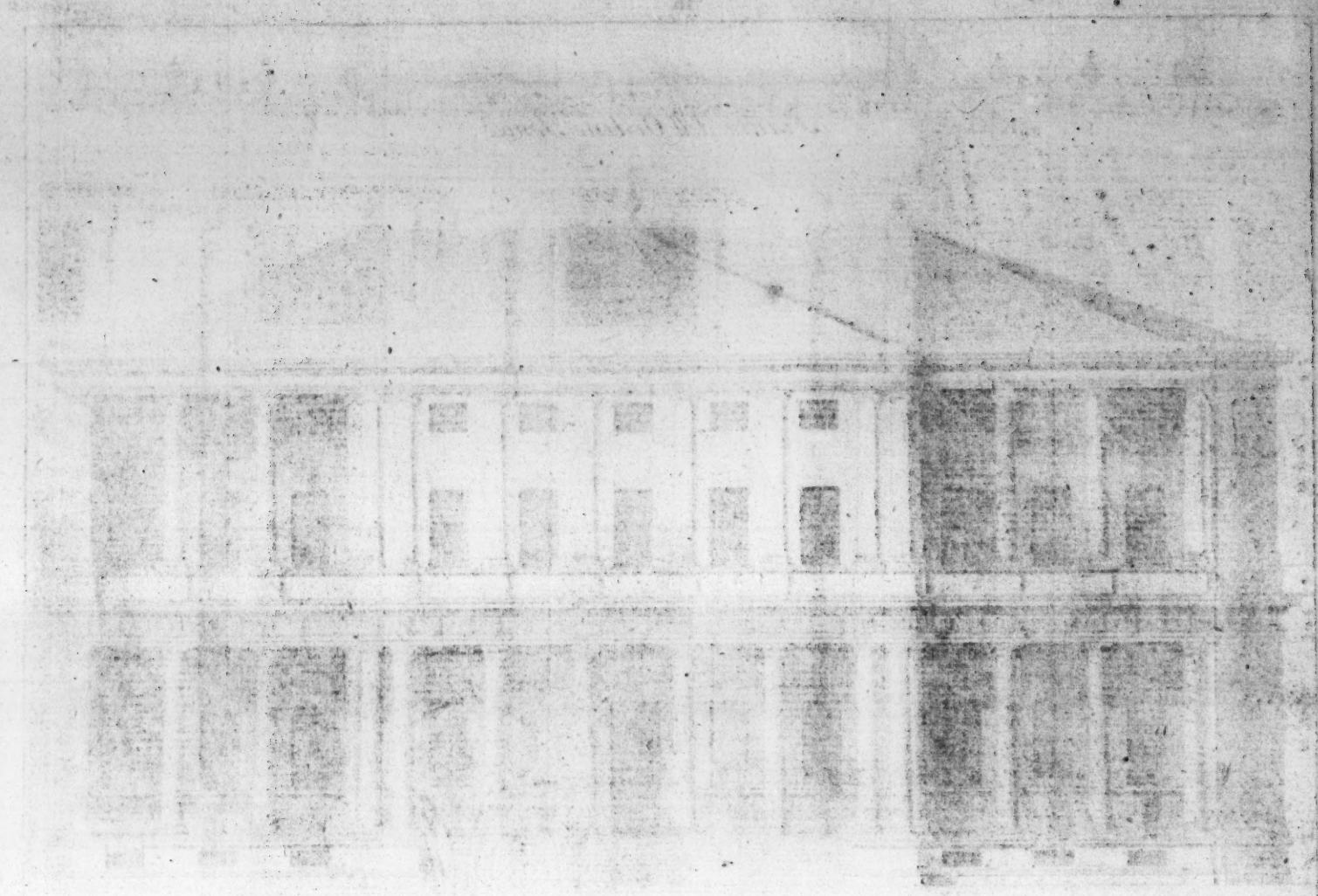
III

Tom. 2.

Pianta dell Ordine Jonico.

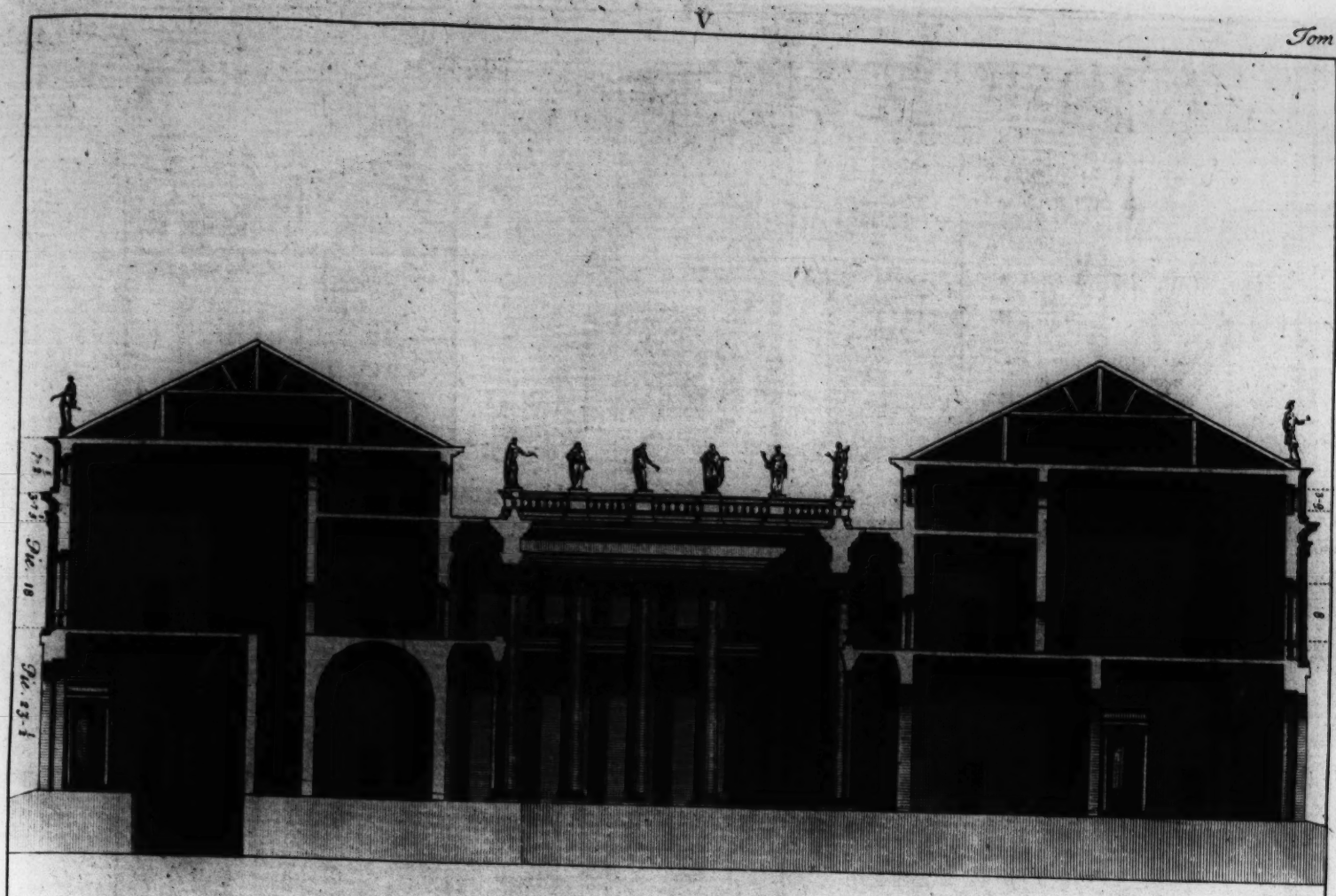


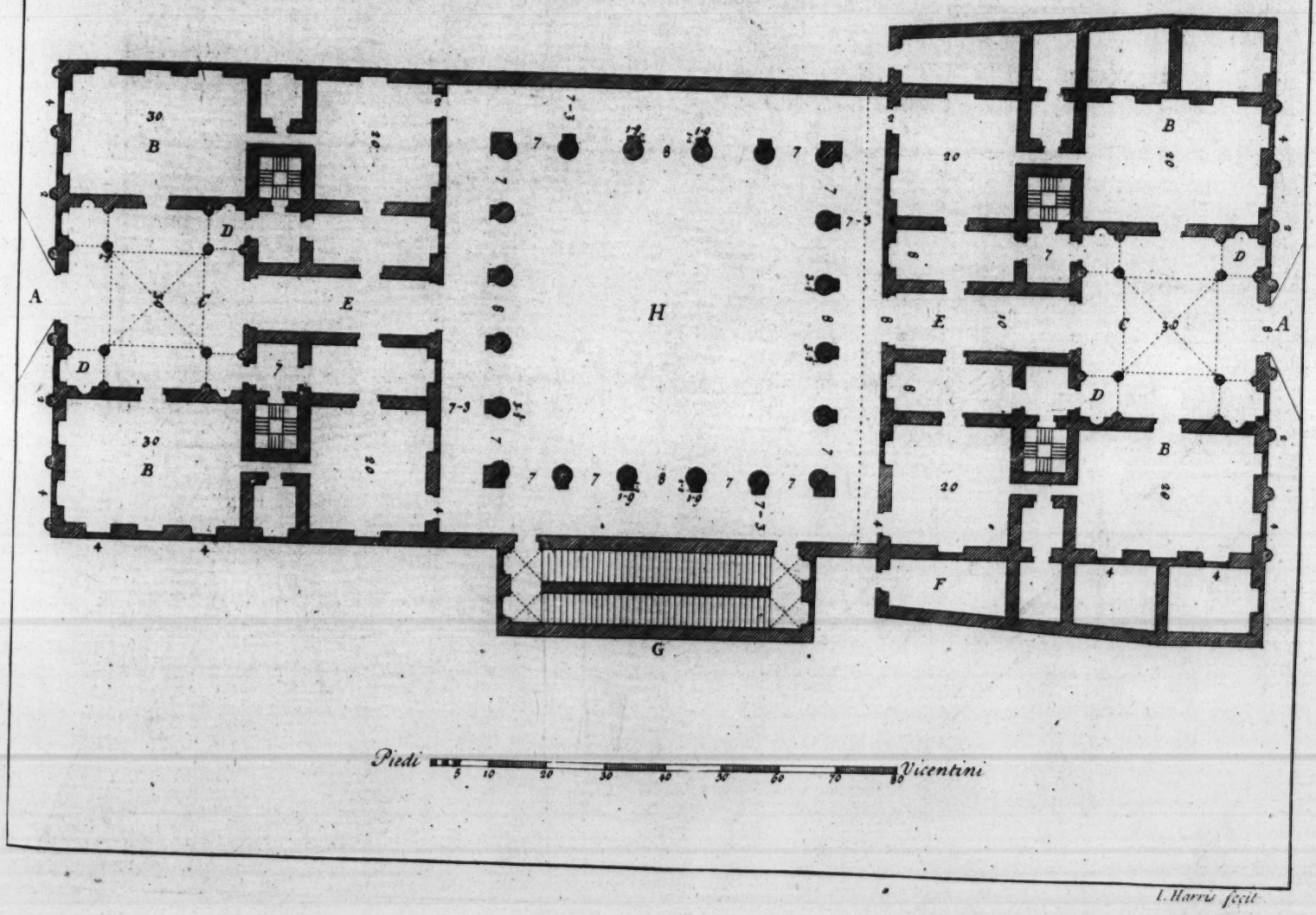
John Harris sculp



BRITISH
22 OCT 25
MUSEUM

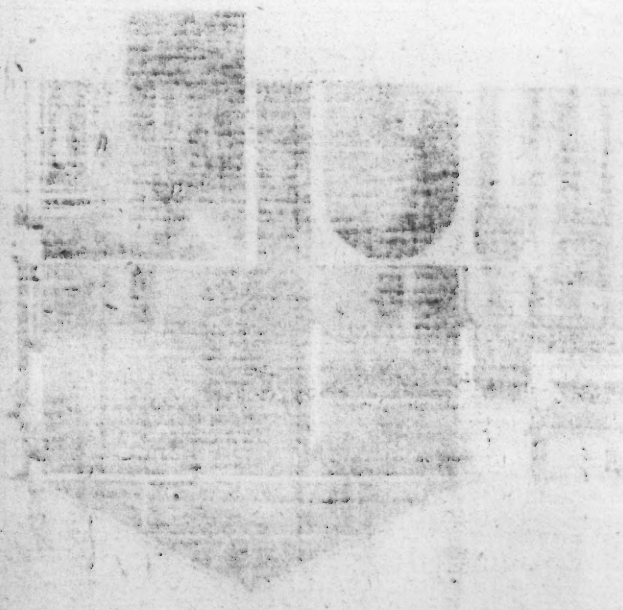
Gravé sous la conduite de B. Picart en 1715.

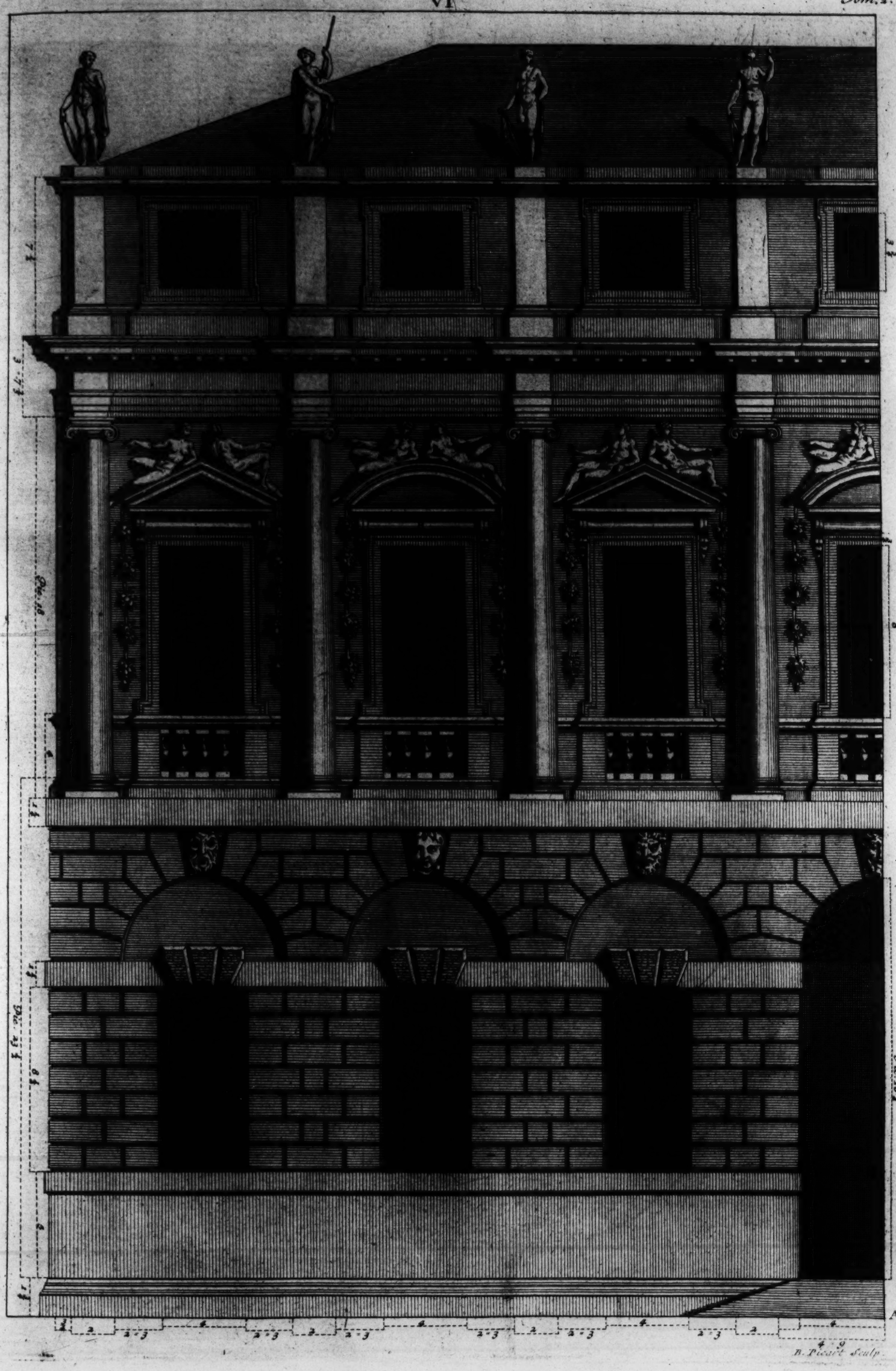


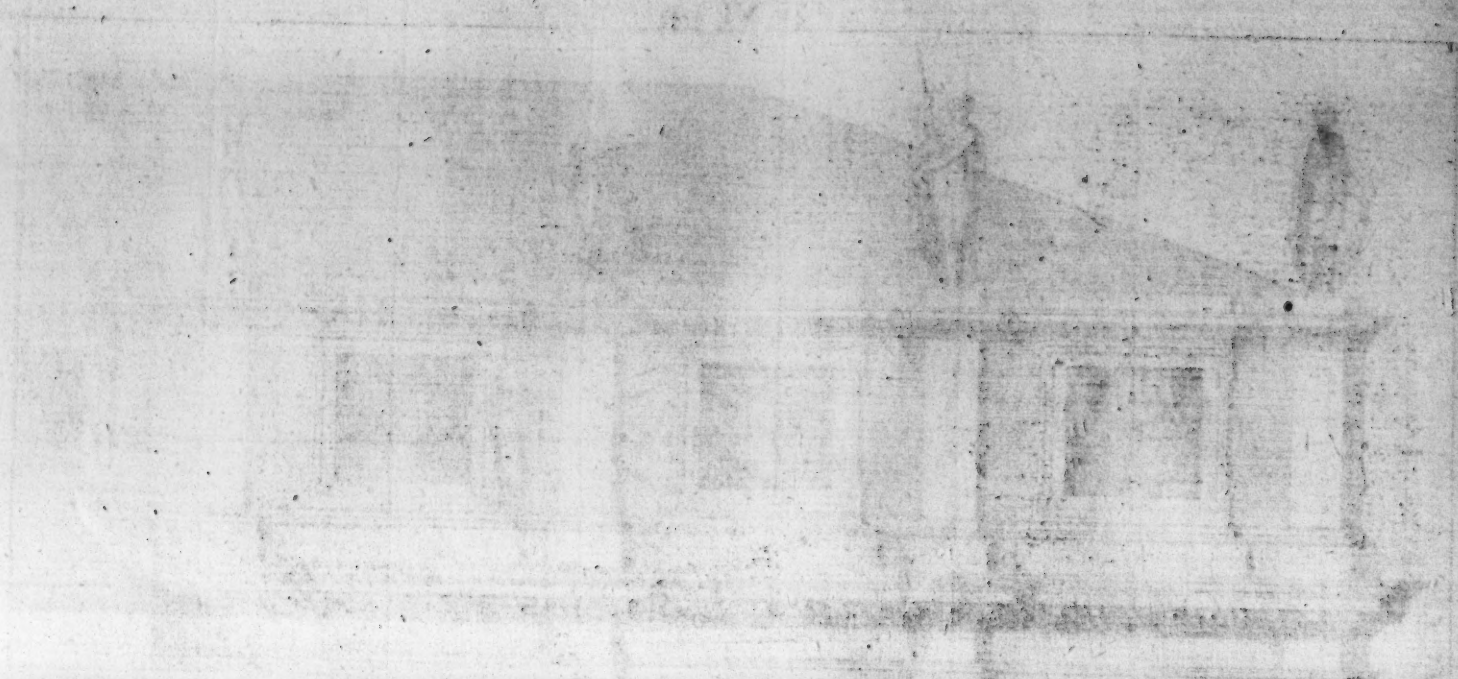


I. Harris fecit

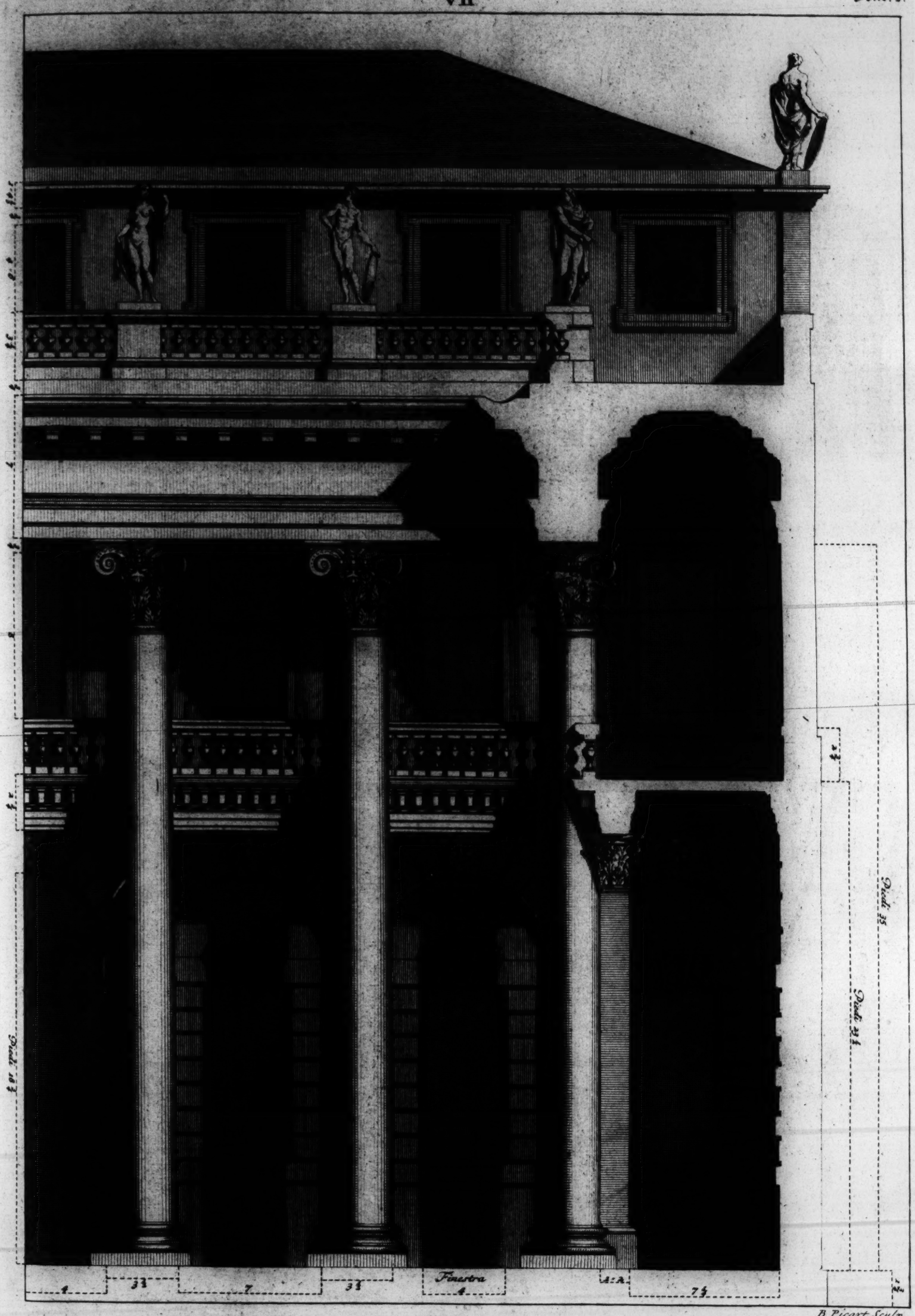
MUSEUM
22 OCT 76




A
B. Picart Sculp.

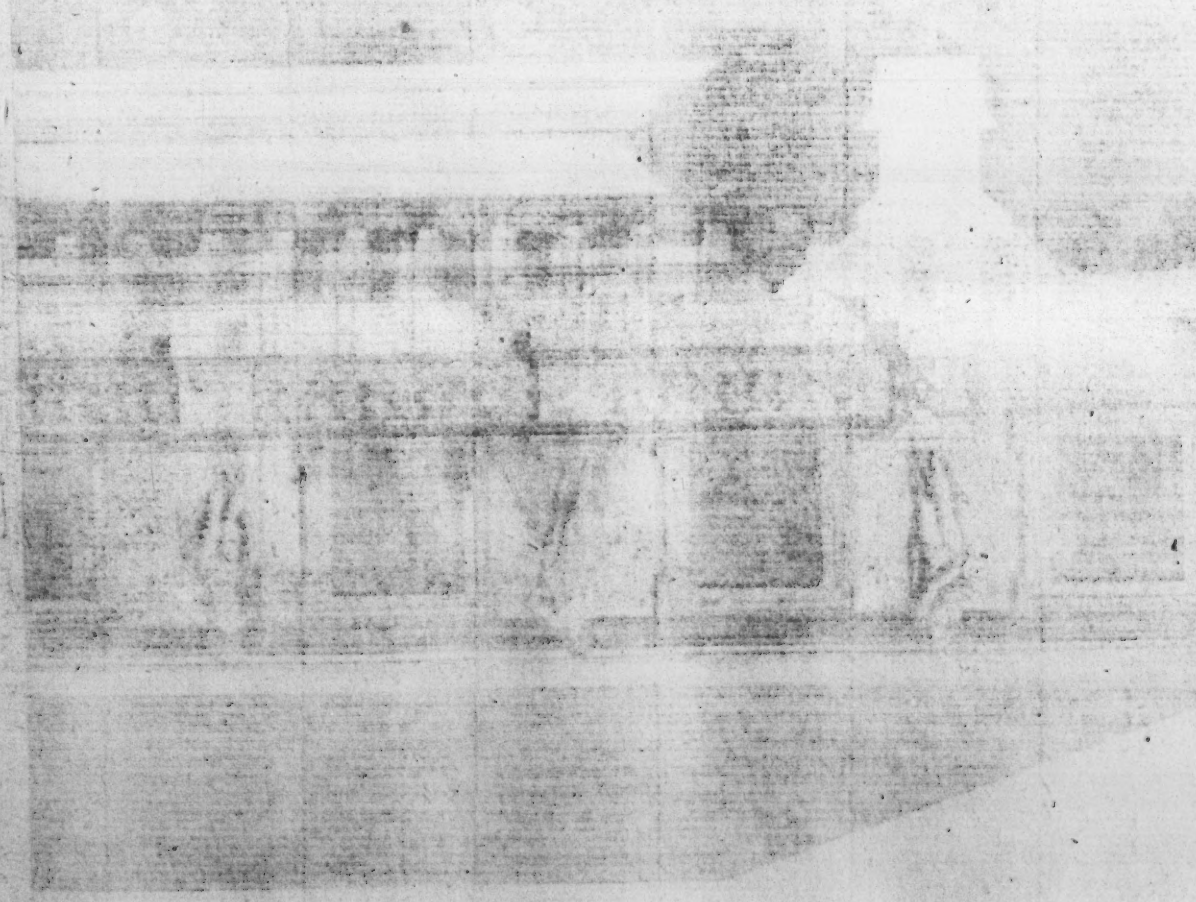


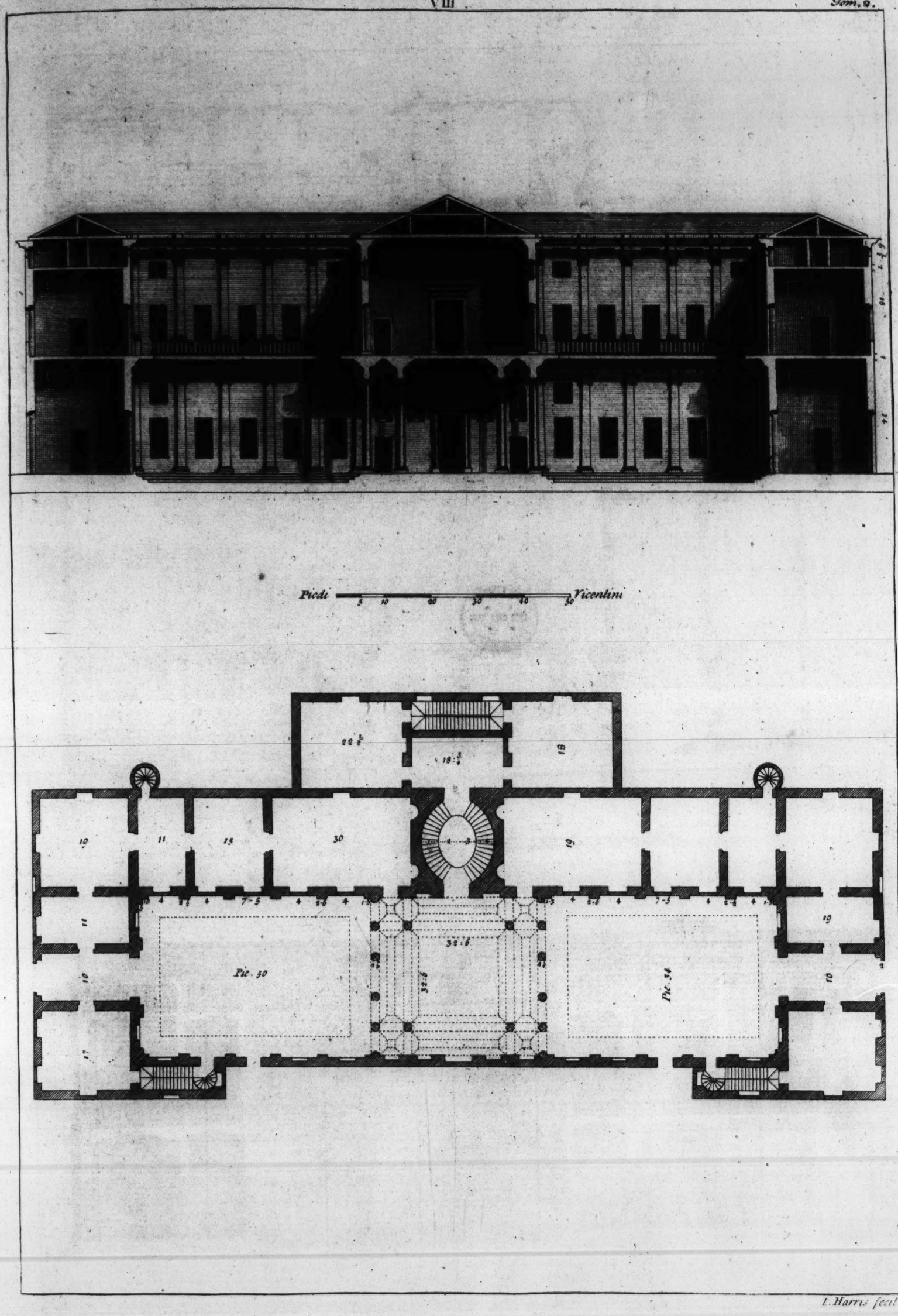
BRITISH
22 OC 75
MUSEUM



B. Picart Sculp.

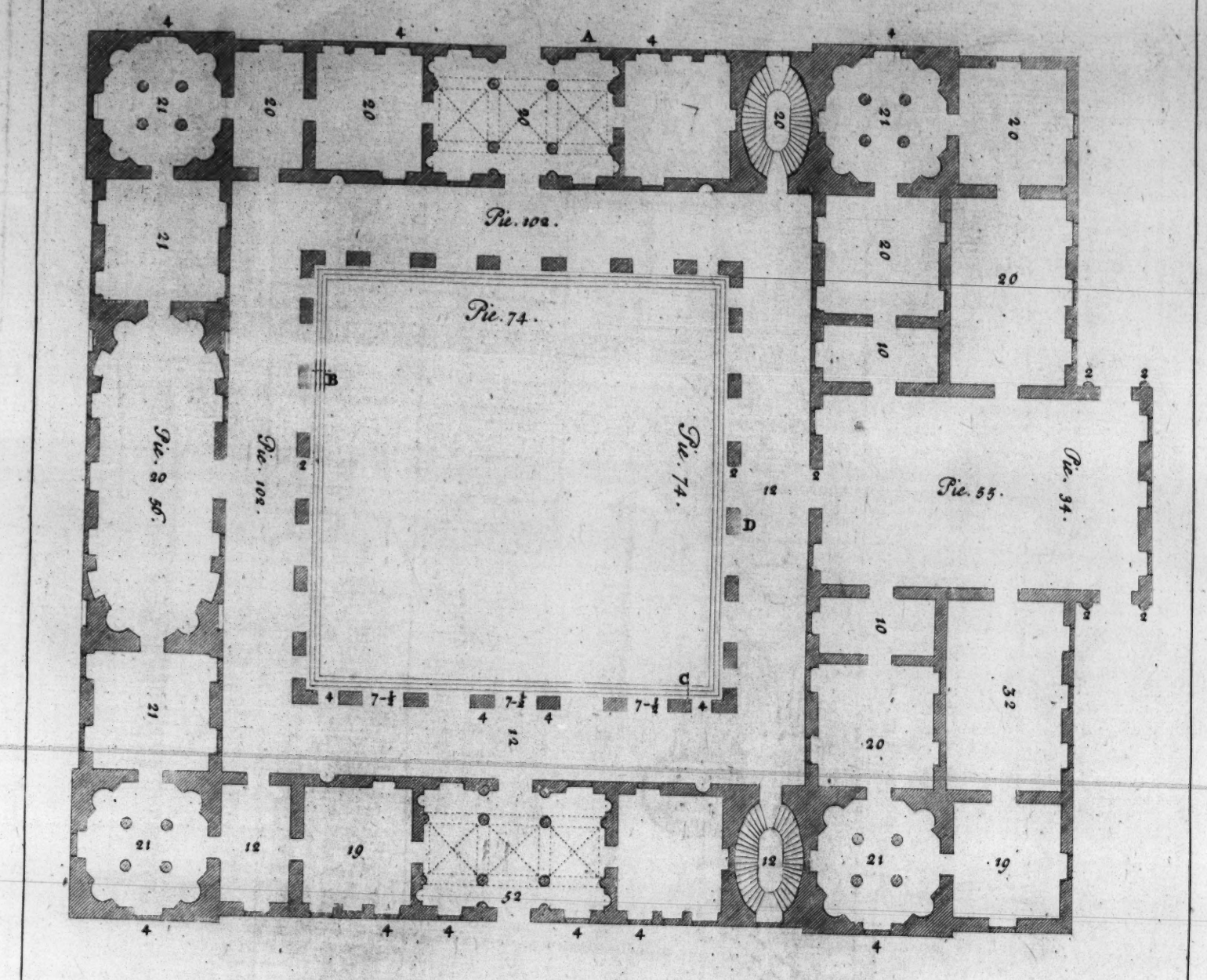
22 OCT 76

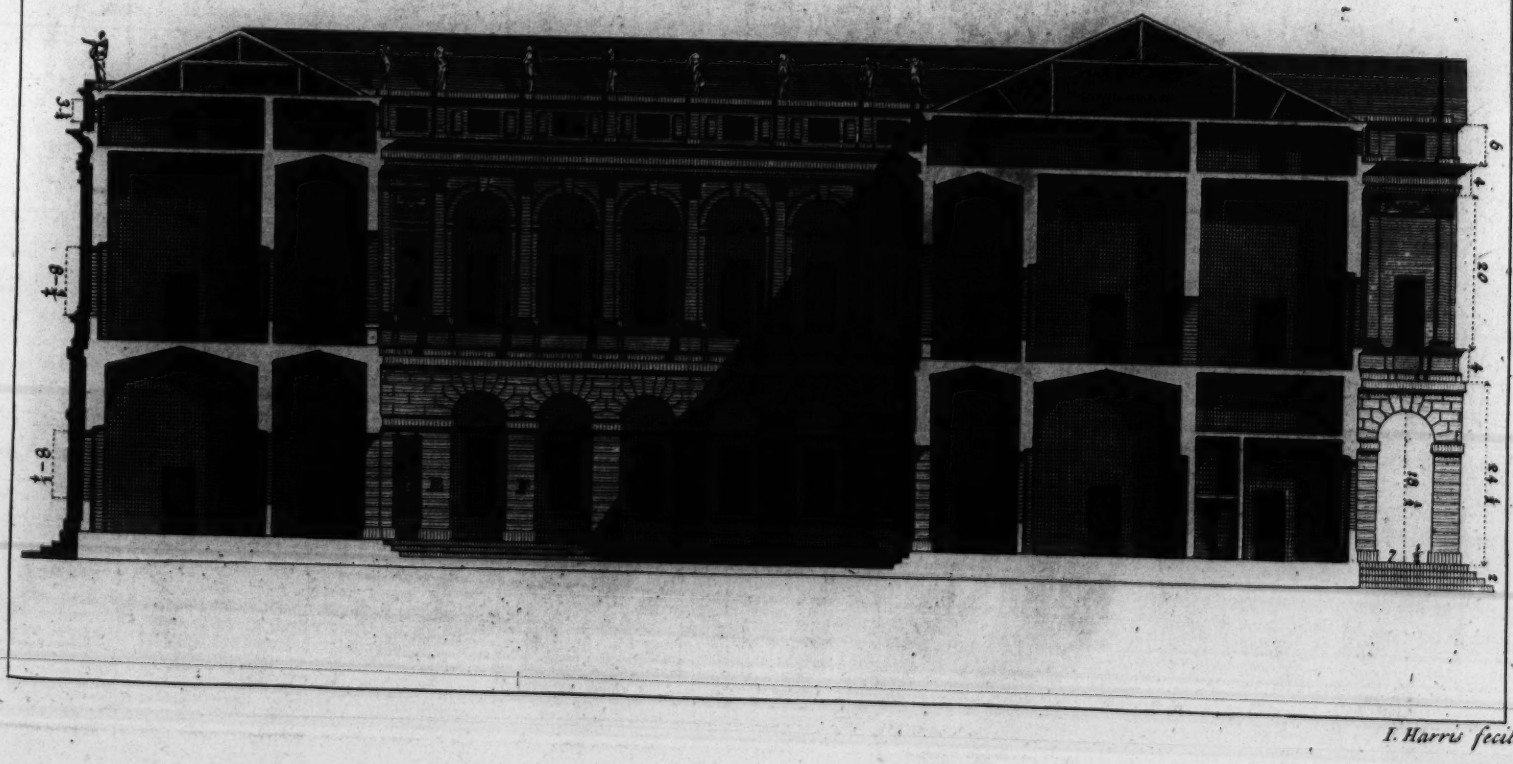




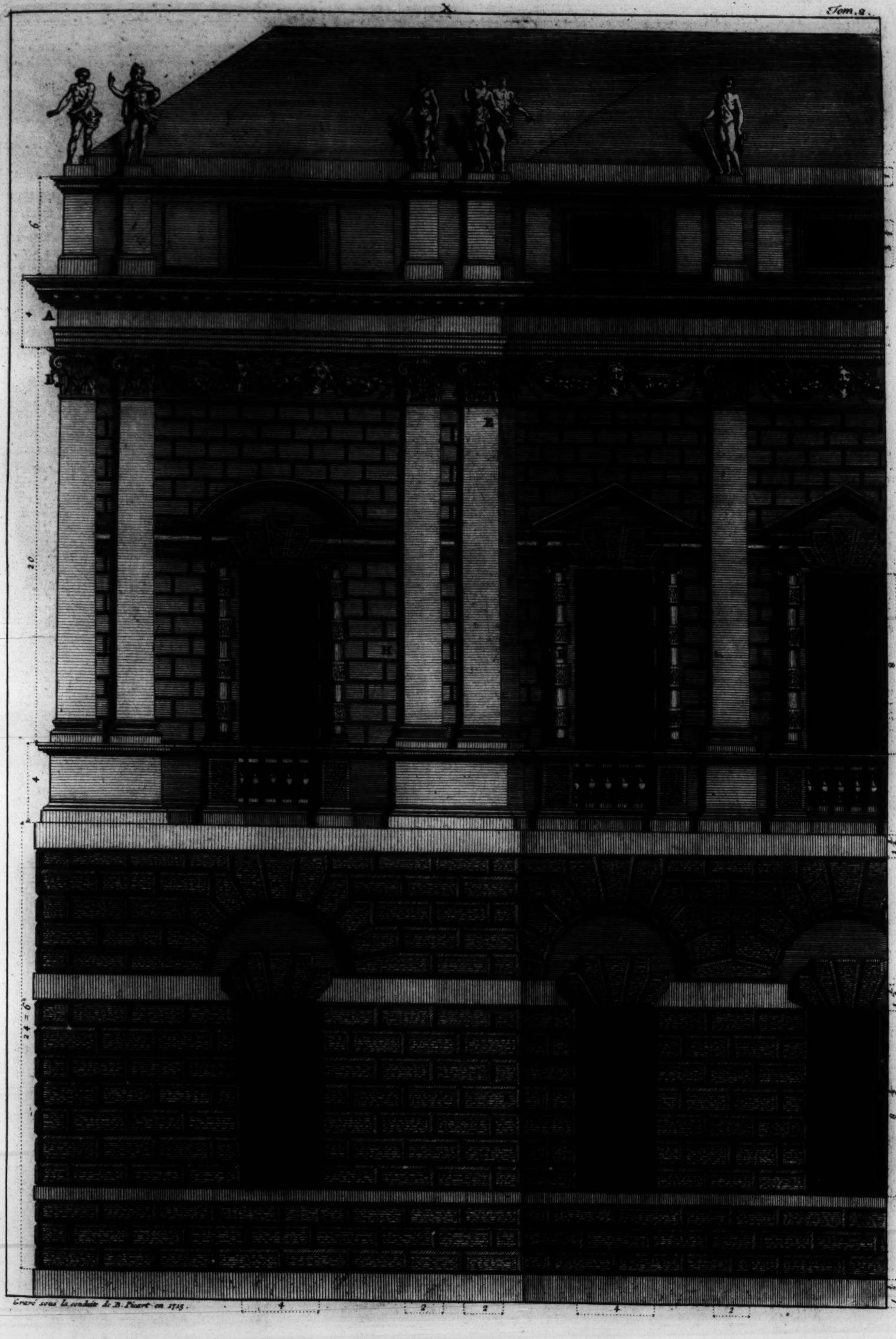
I. Harris fecit

22 OCT 76



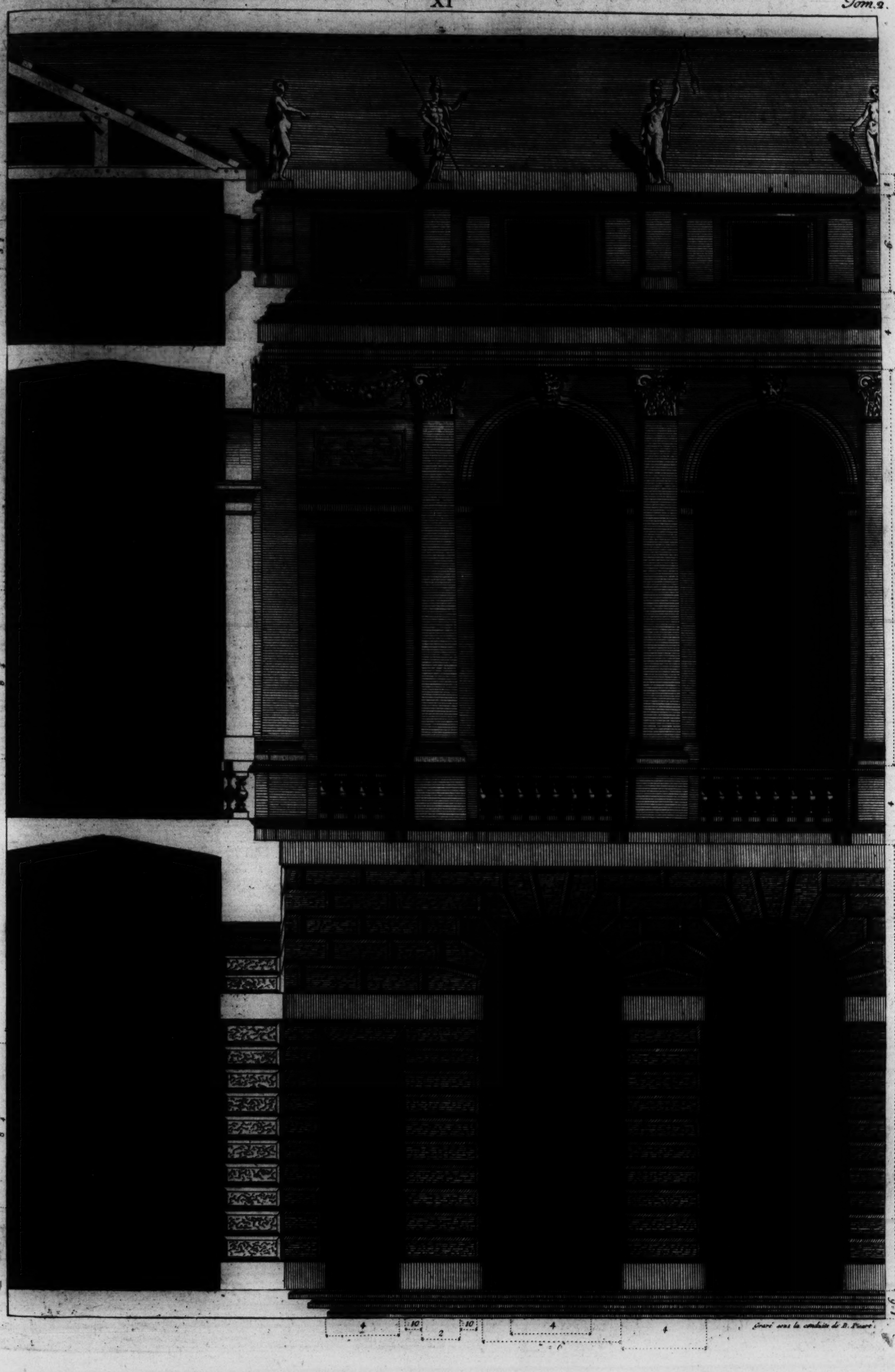


I. Harris fecit.



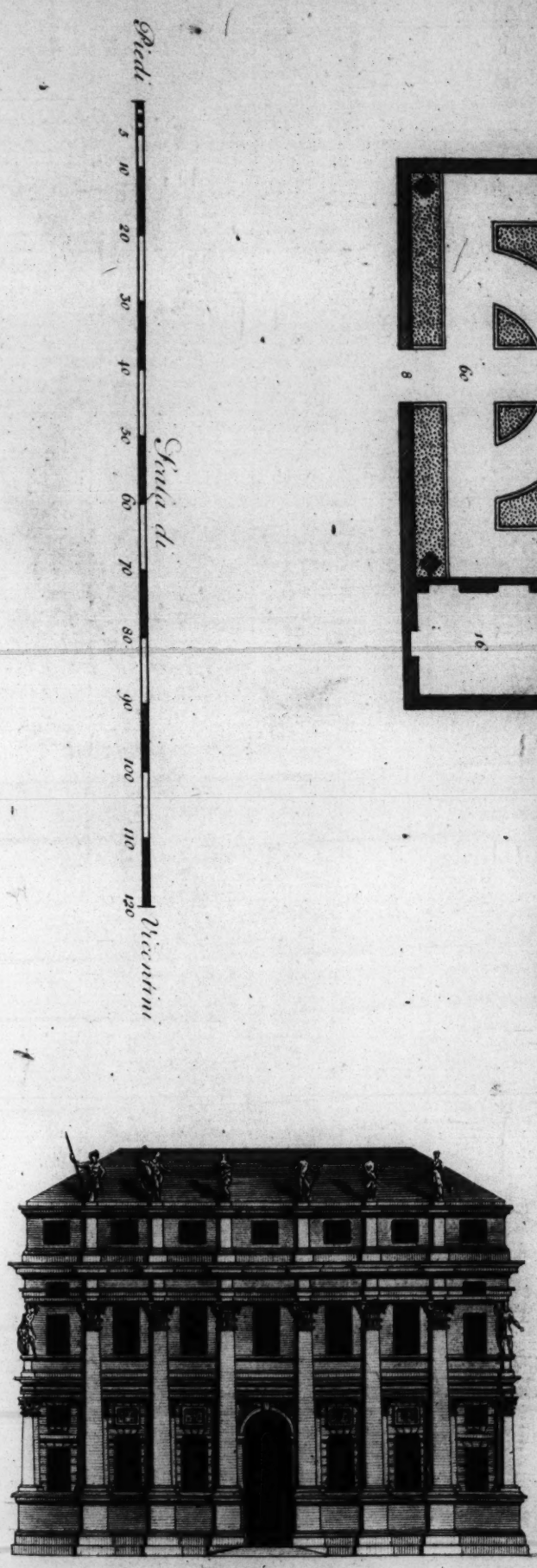
Gravé sous la conduite de B. Picart en 1715.

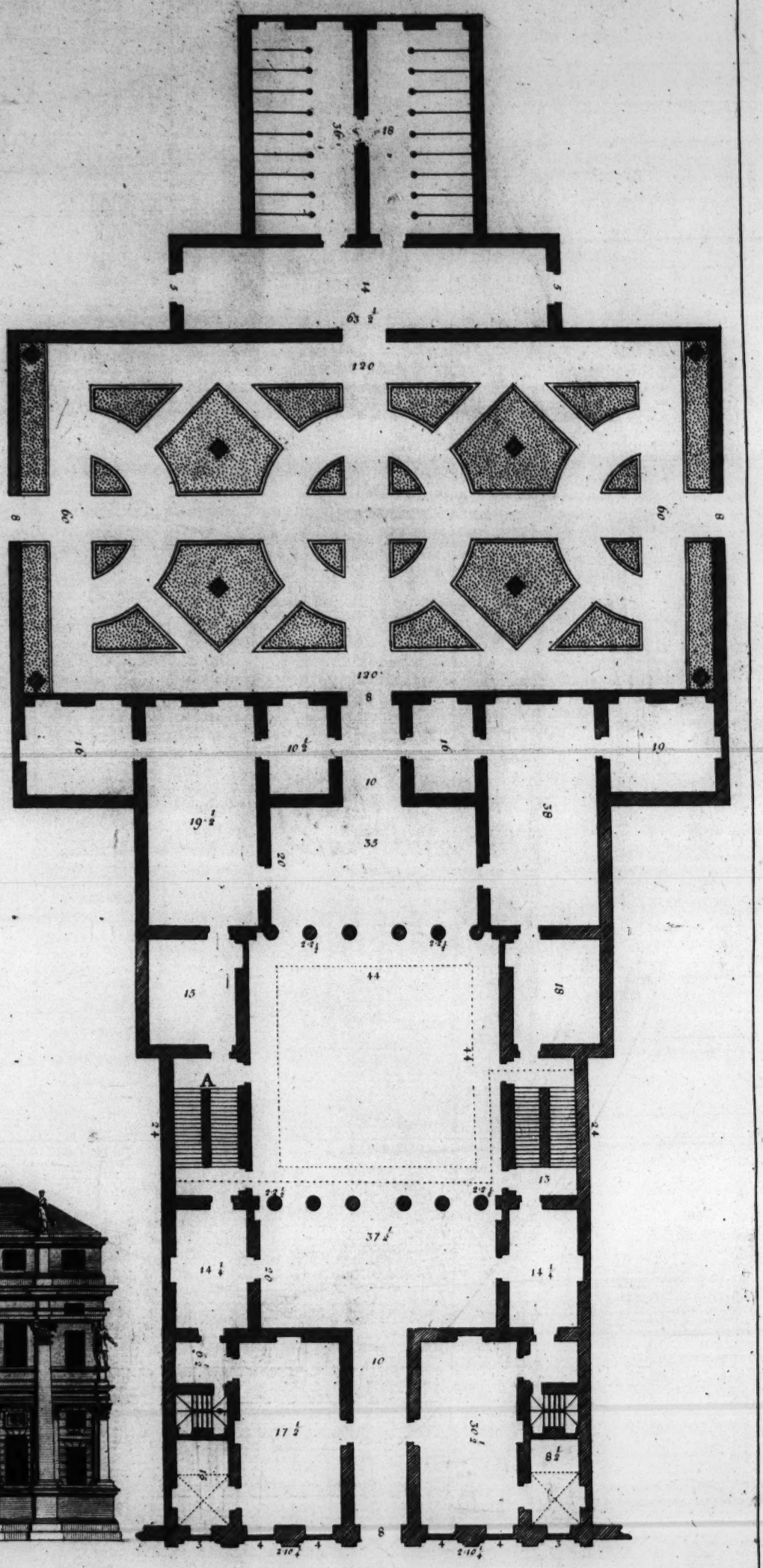
BOSTON
22 OCT 75
PUBLIC



Gravé sous la conduite de B. Picart.

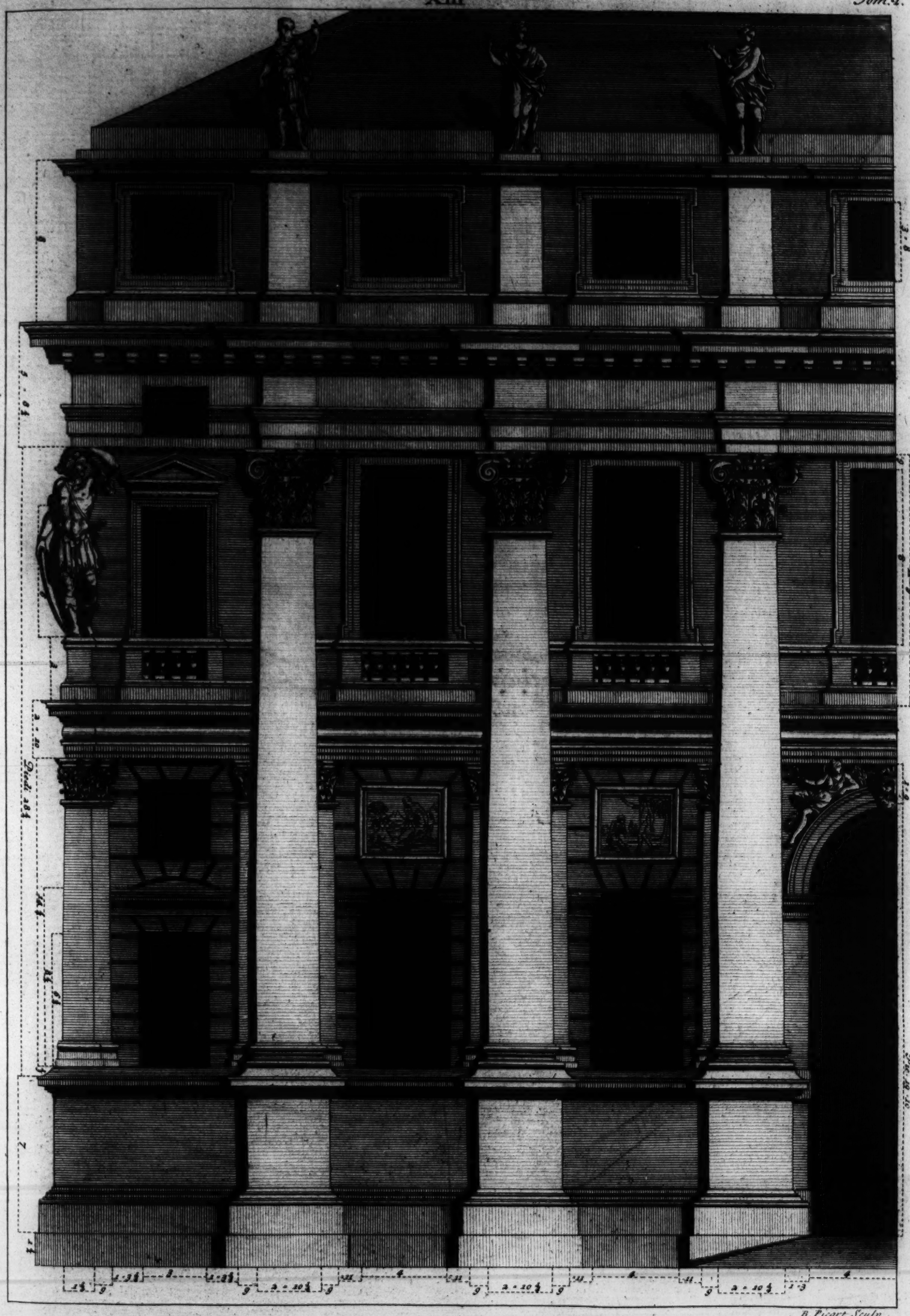
Scale of Vicentine





J. Harris fecit.

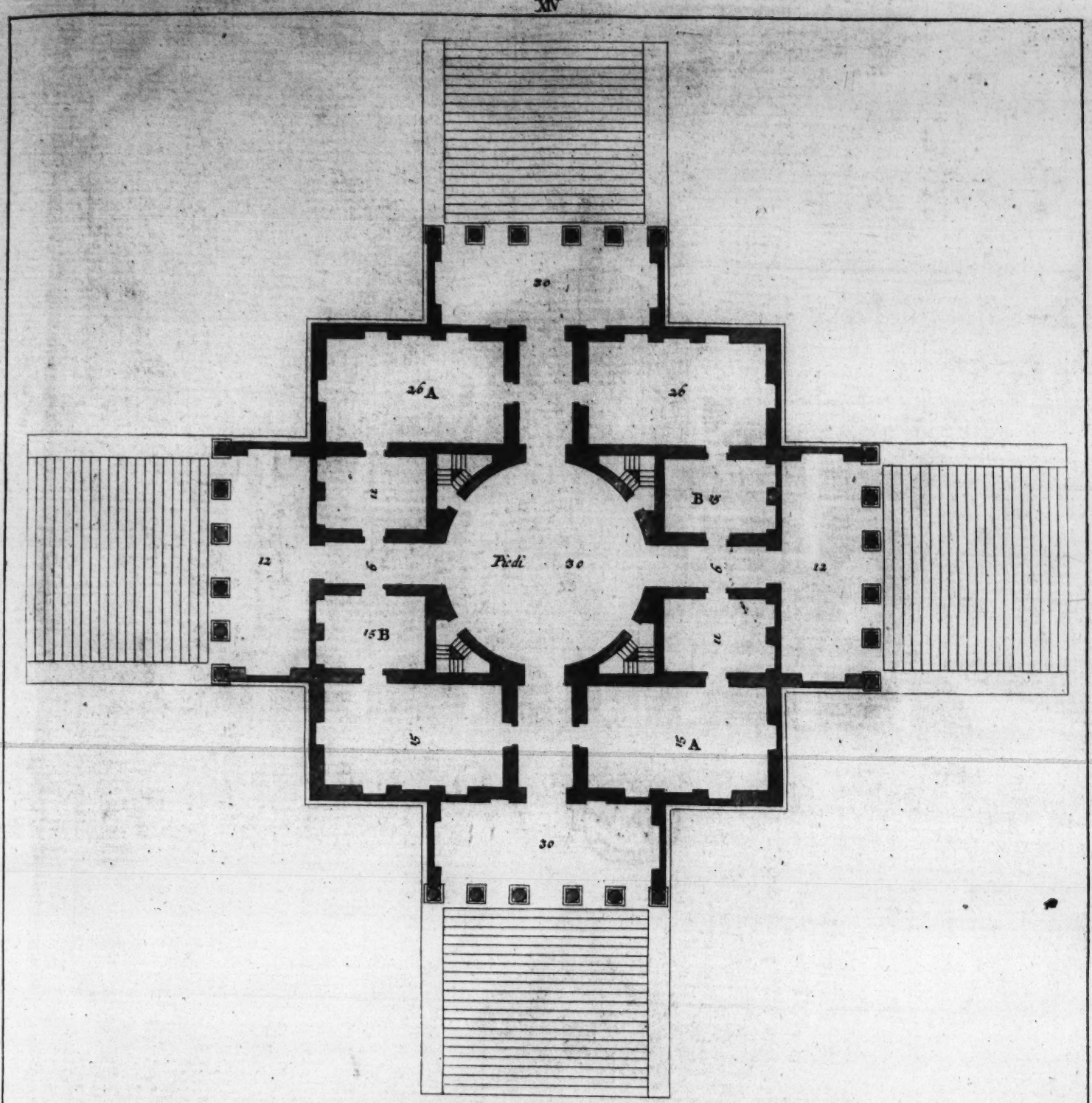
PATENTS
24 JUN 55

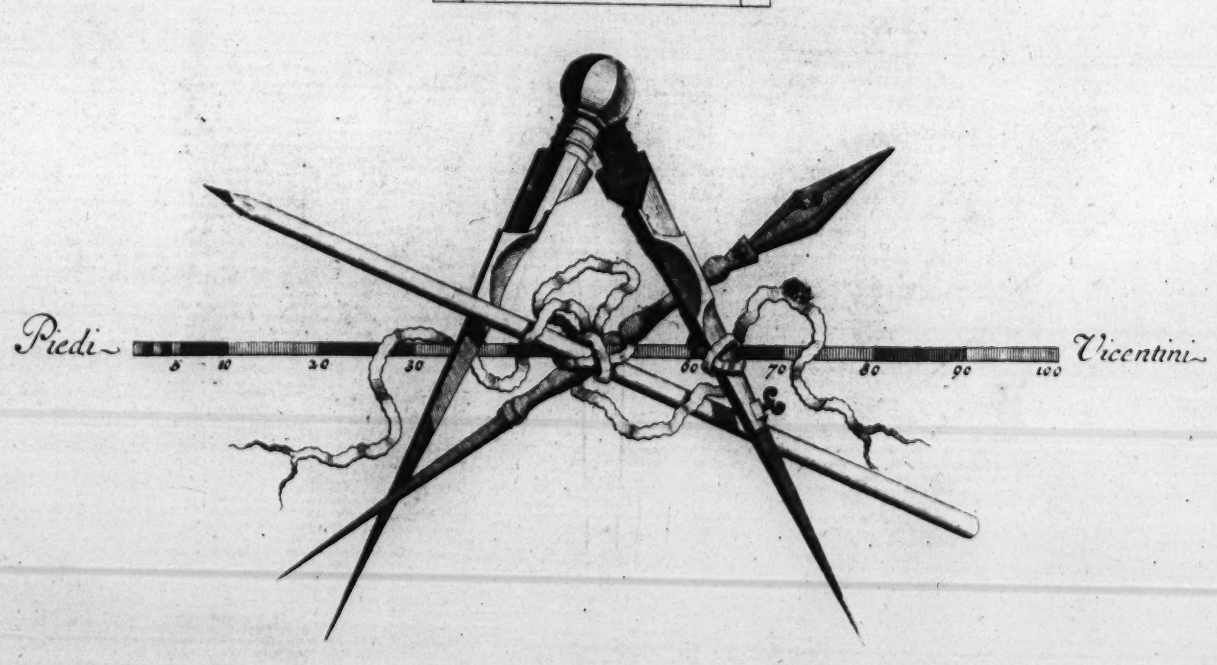


B. Picart Sculp.

SEATTLE
22 OCT 25
MUSEUM

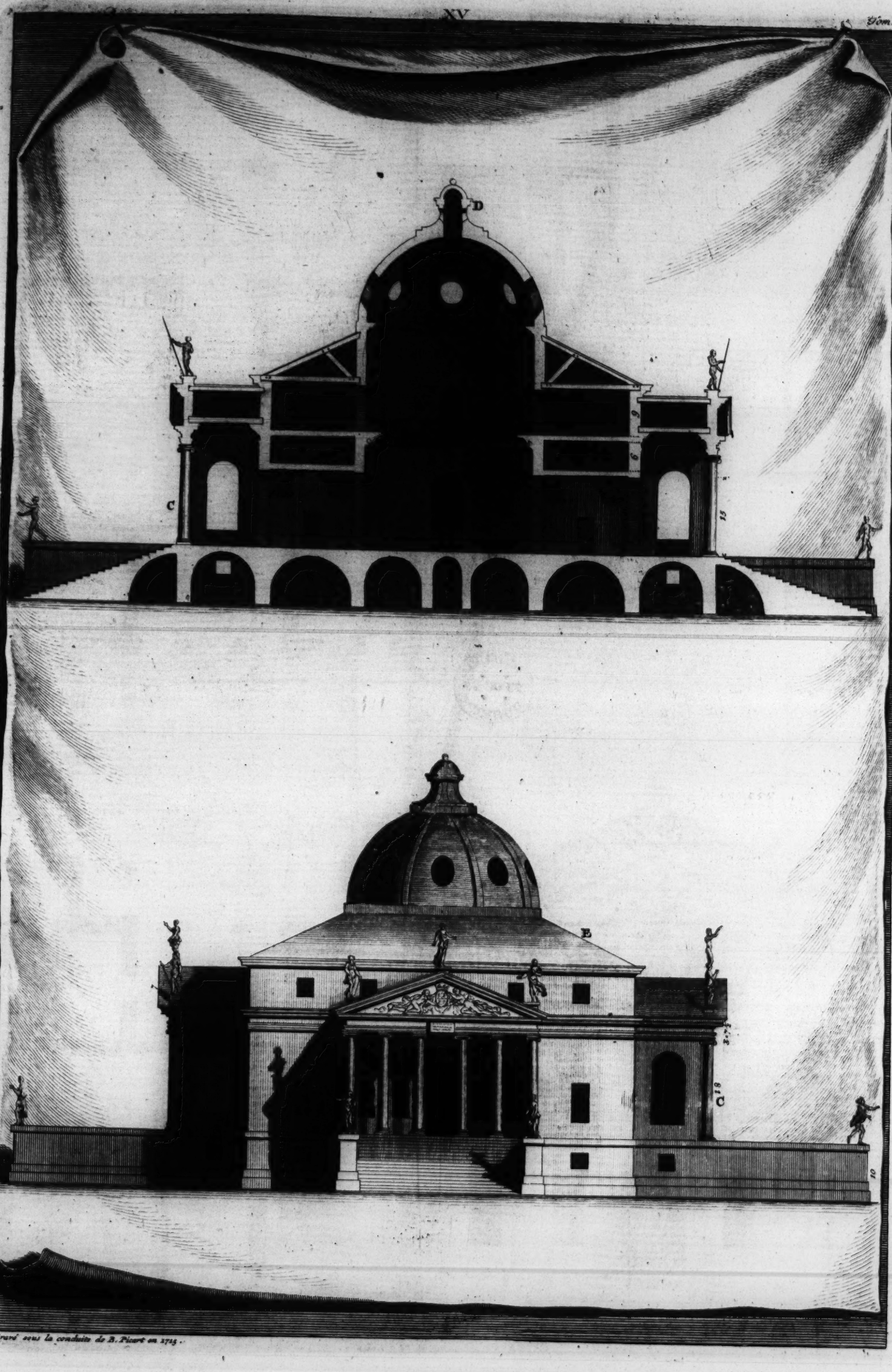
XIV


20
26 A
26
12
B 15
12
Piedi 30
6
6
12
15 B
12
15
15 A
30


Piedi
5
10
20
30
60
70
80
90
100
Vicentini

BRITISH
22 OC 25
MUSEUM

Tom. 2.

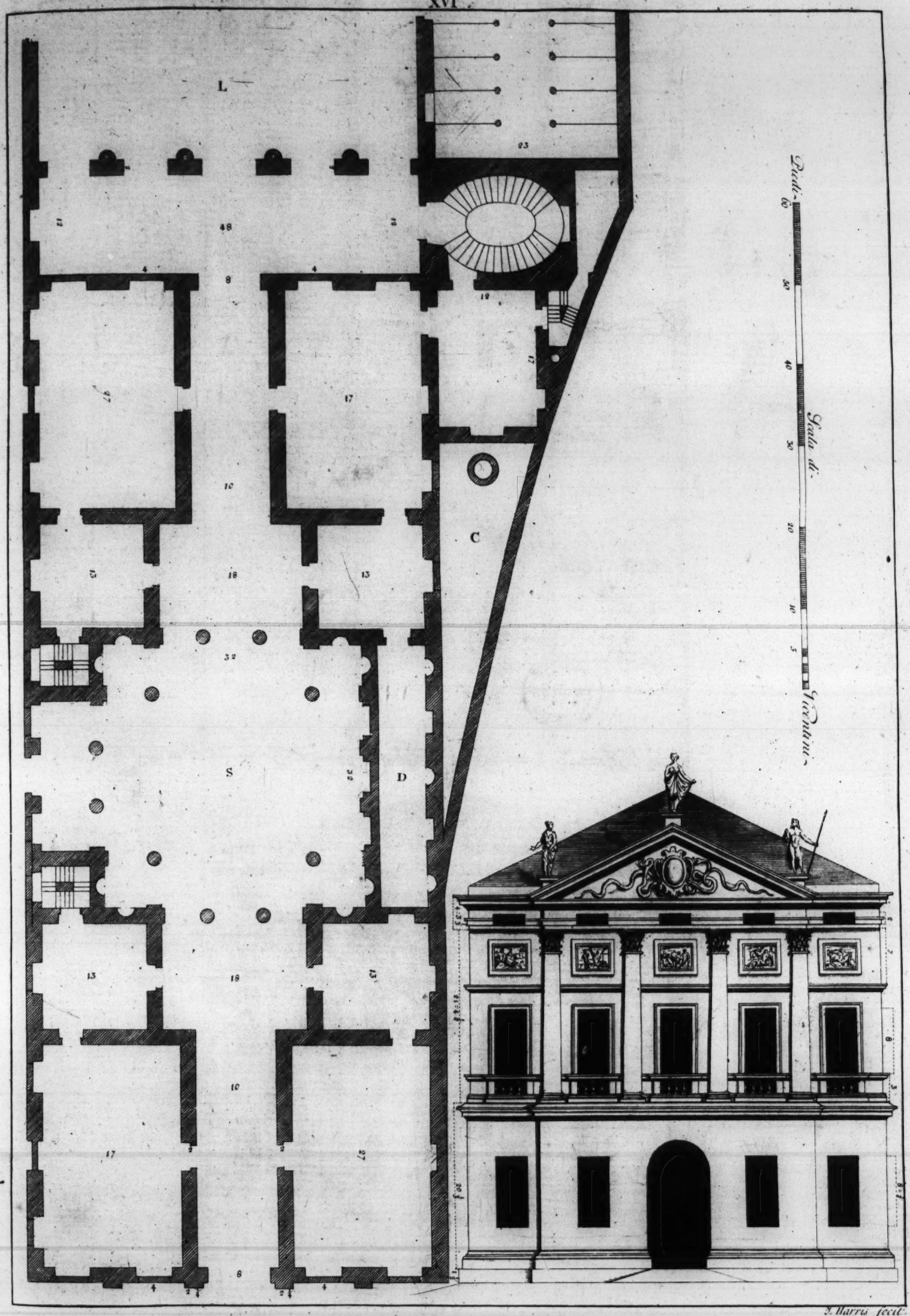


Gravé sous la conduite de B. Picart en 1715.

SMITHSONIAN
22 OCT 25
LIBRARIES

Tom. 2.

XVI

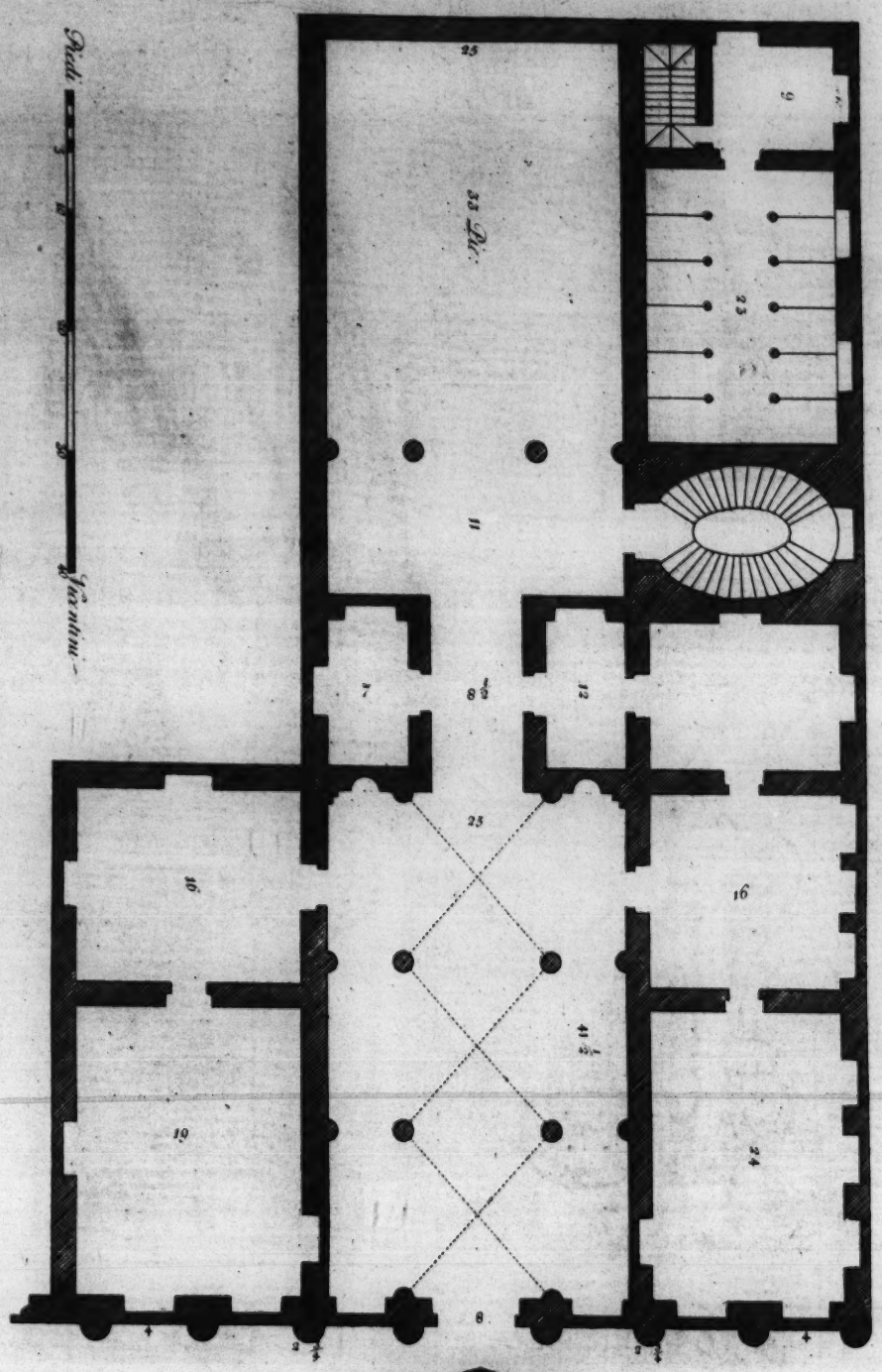


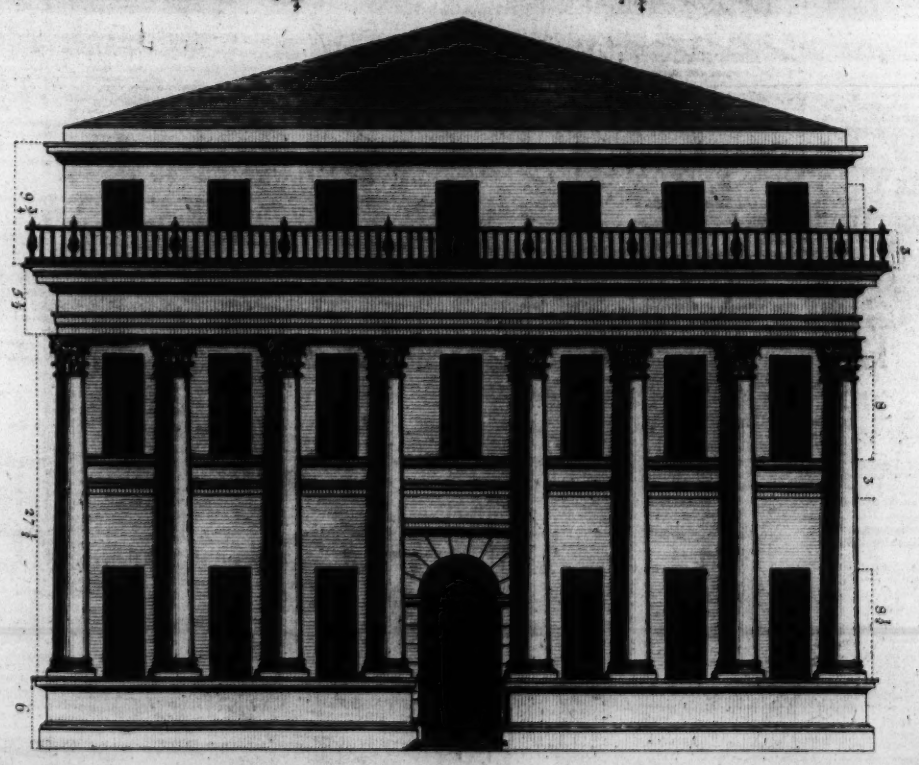
J. Harris fecit.

SCOTTISH
22 OCT 75
MUSEUM

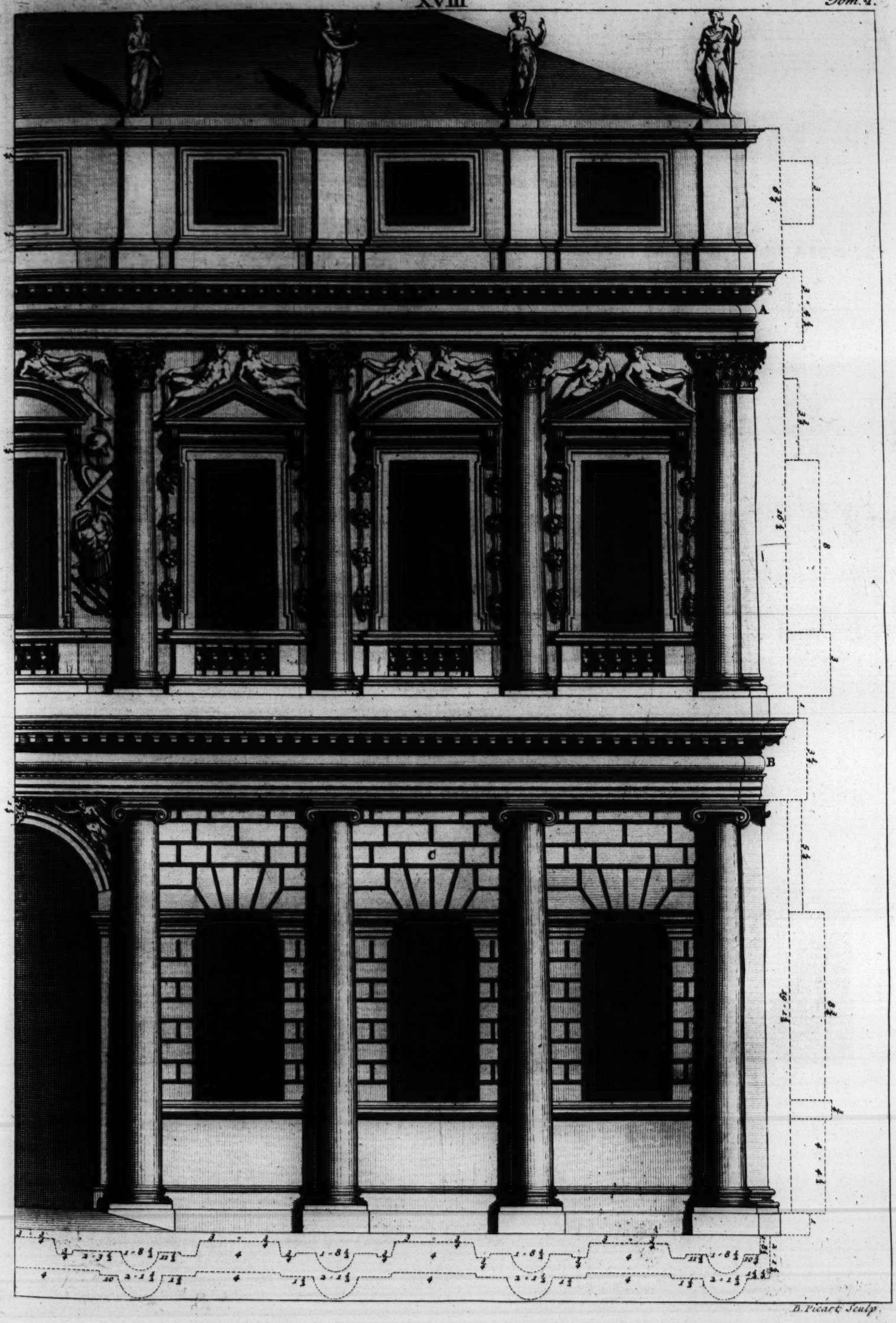
Feet

Yards

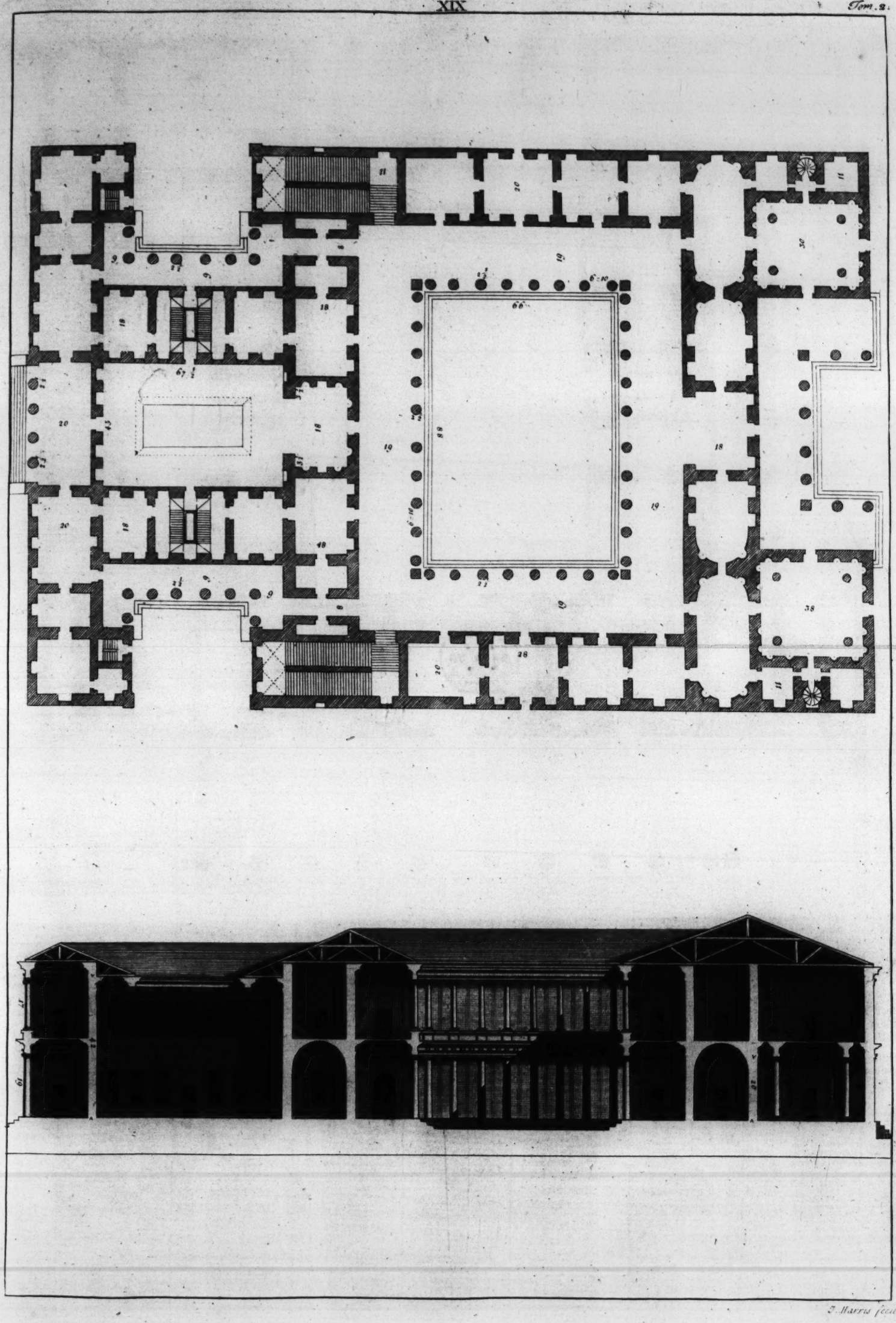




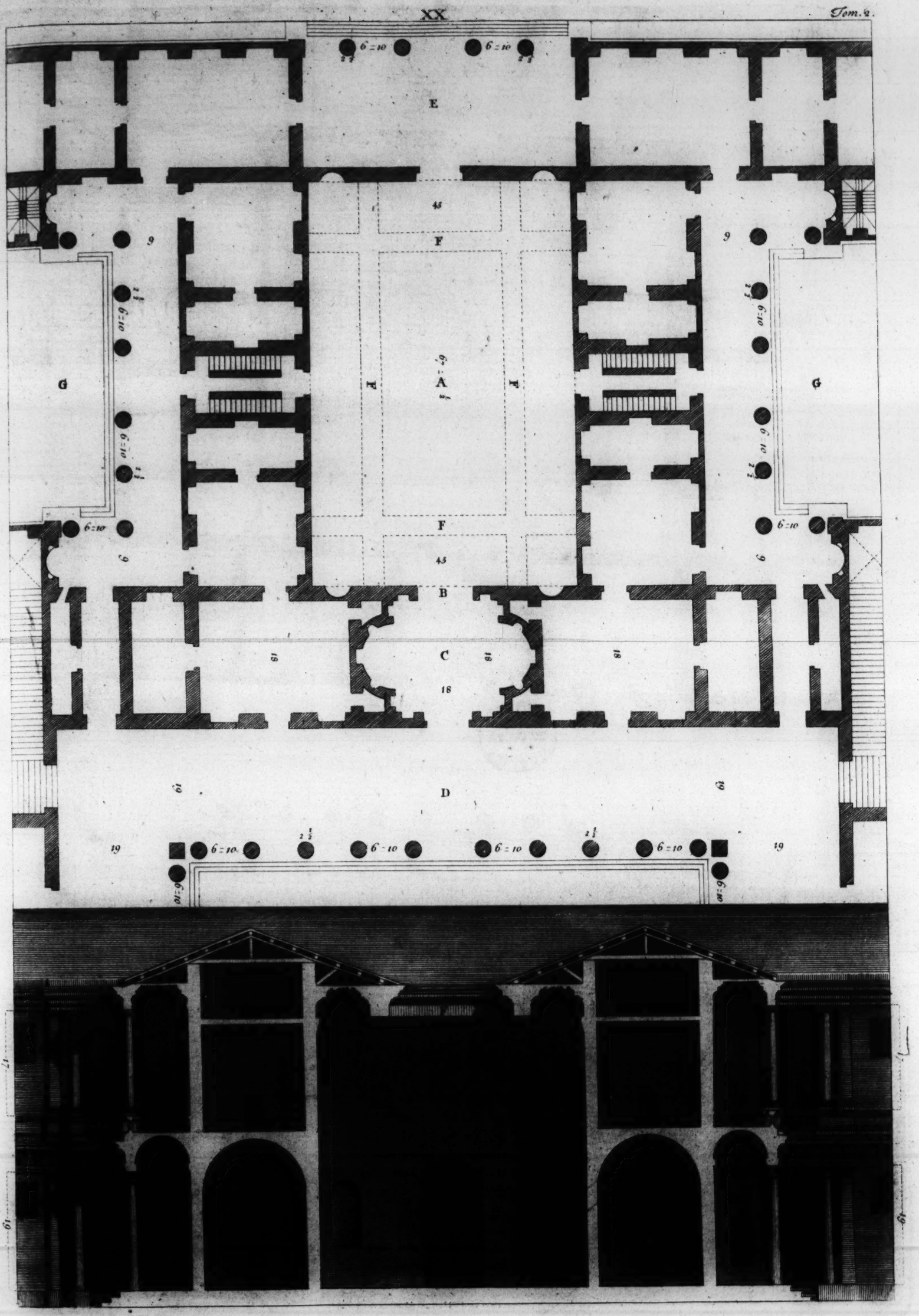
J. Harris sc.

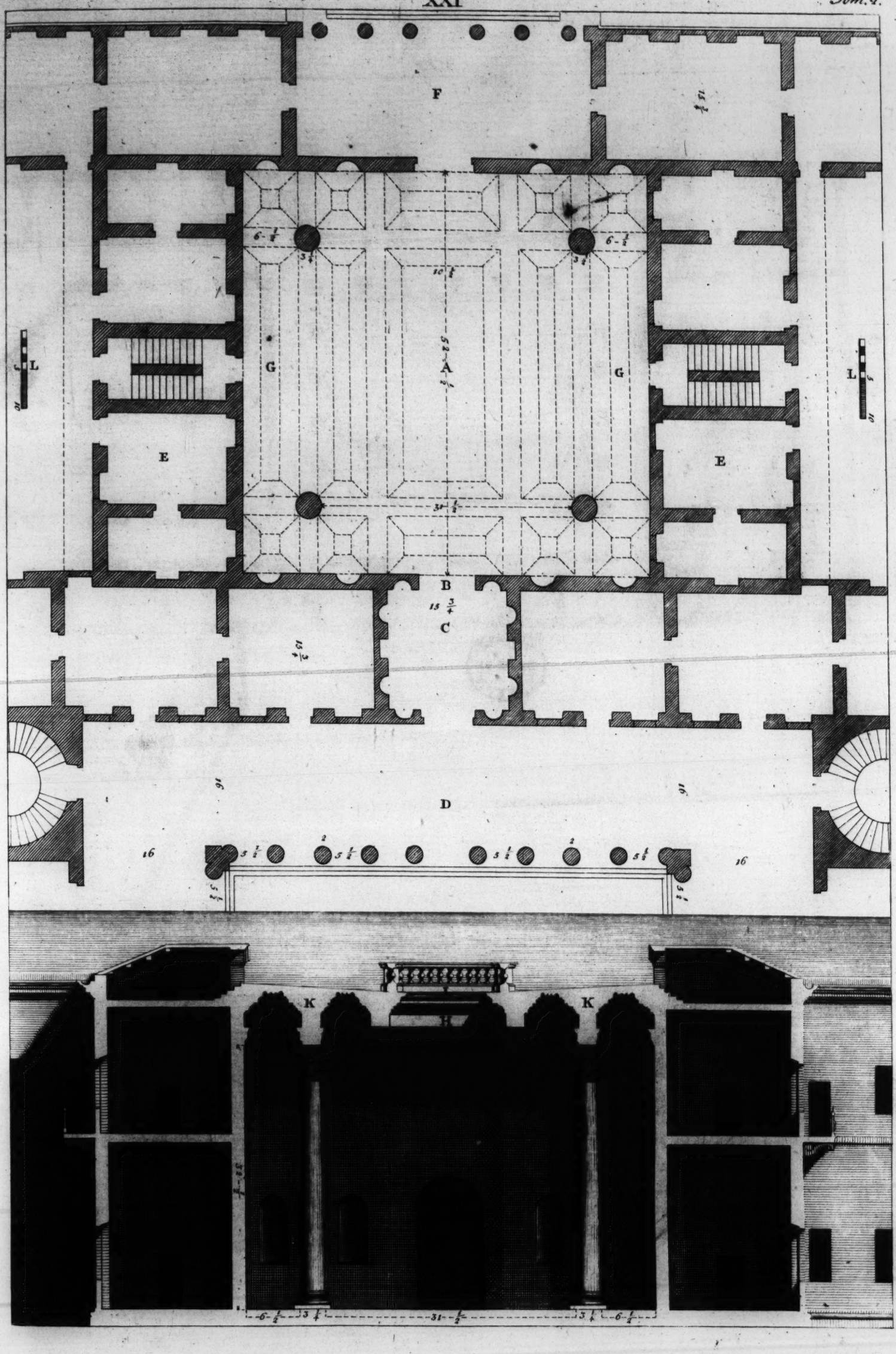

A
B
C
B. Picart Sculp.

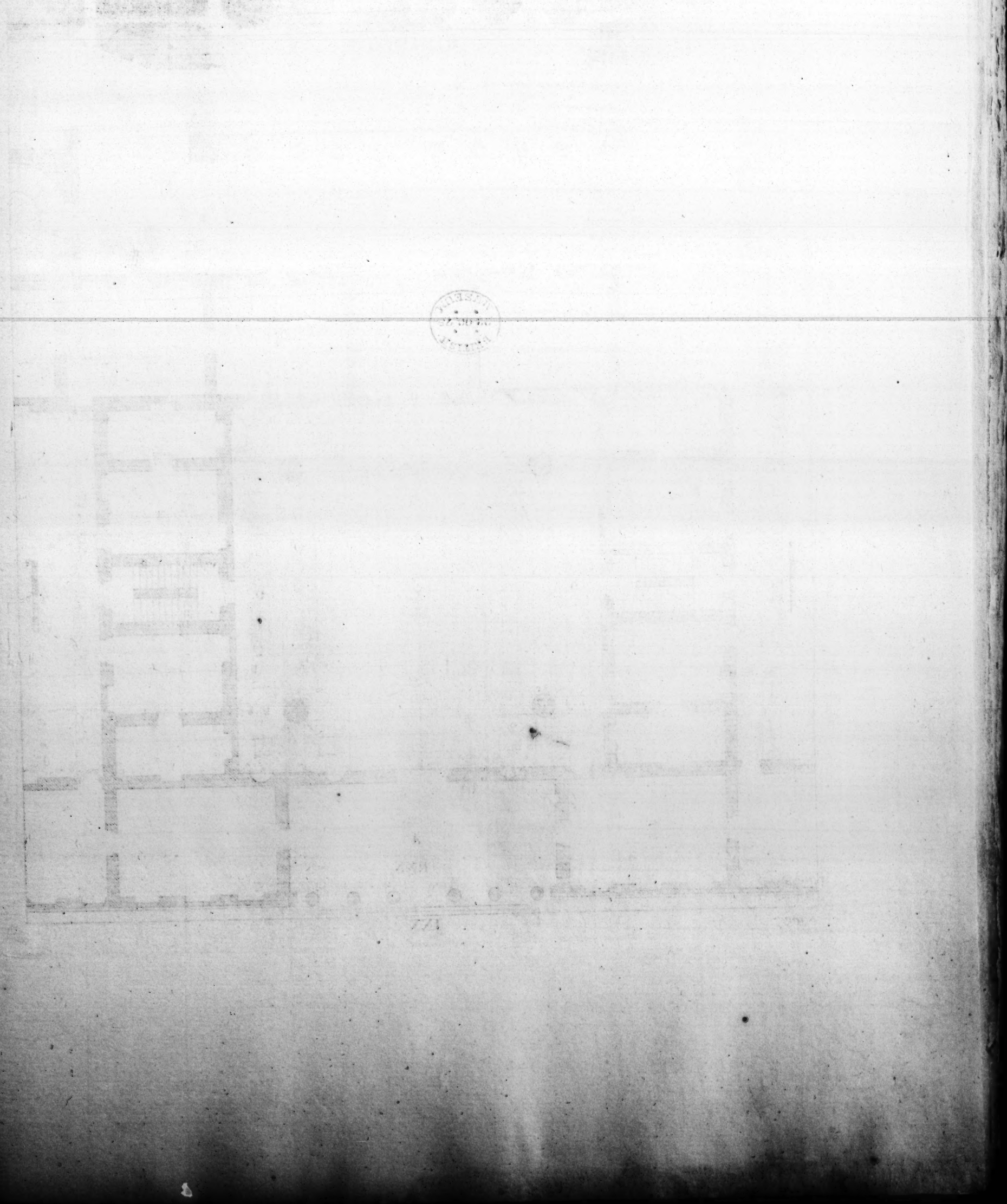
BRITISH
22 OCT 75
MUSEUM

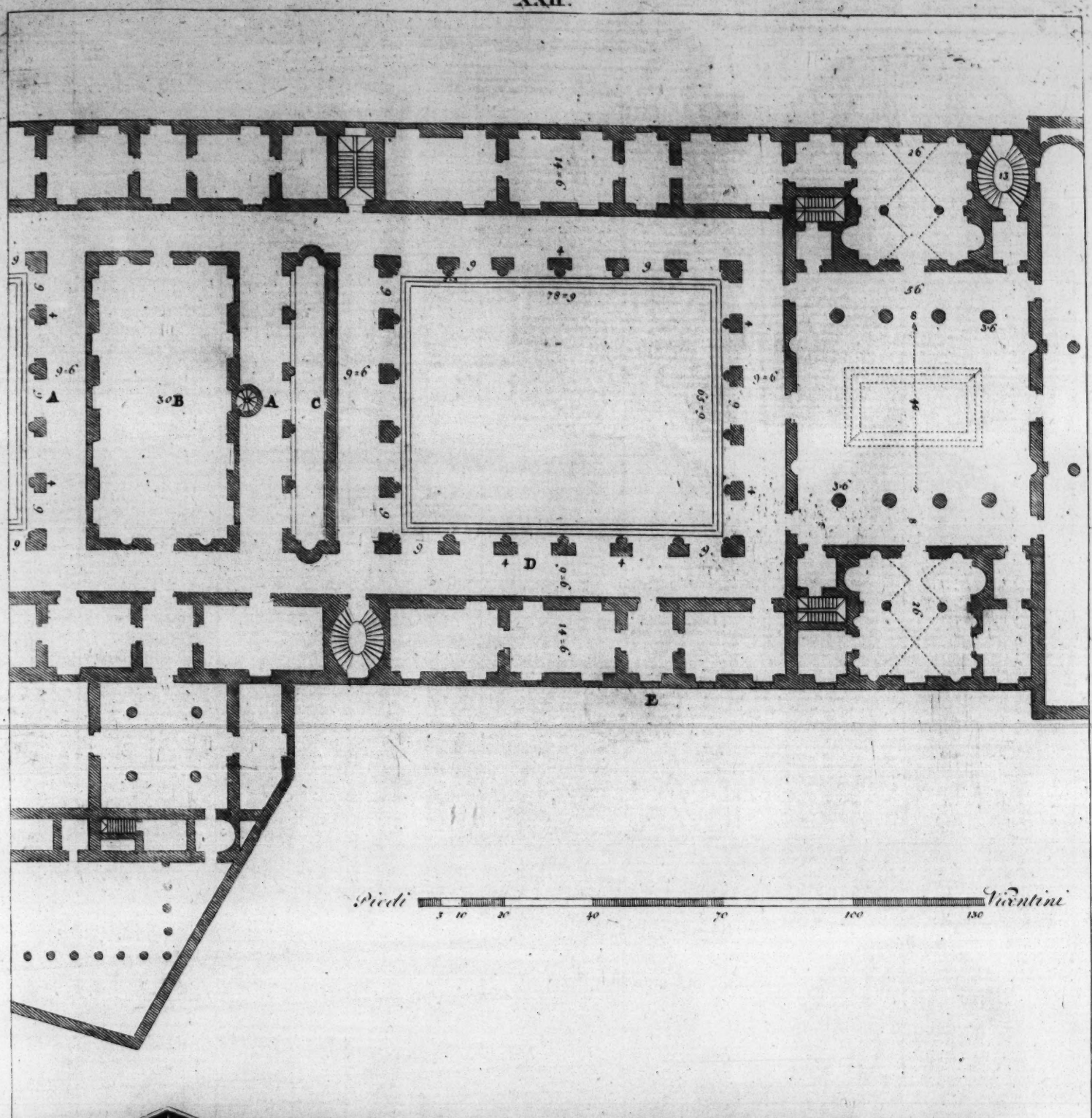


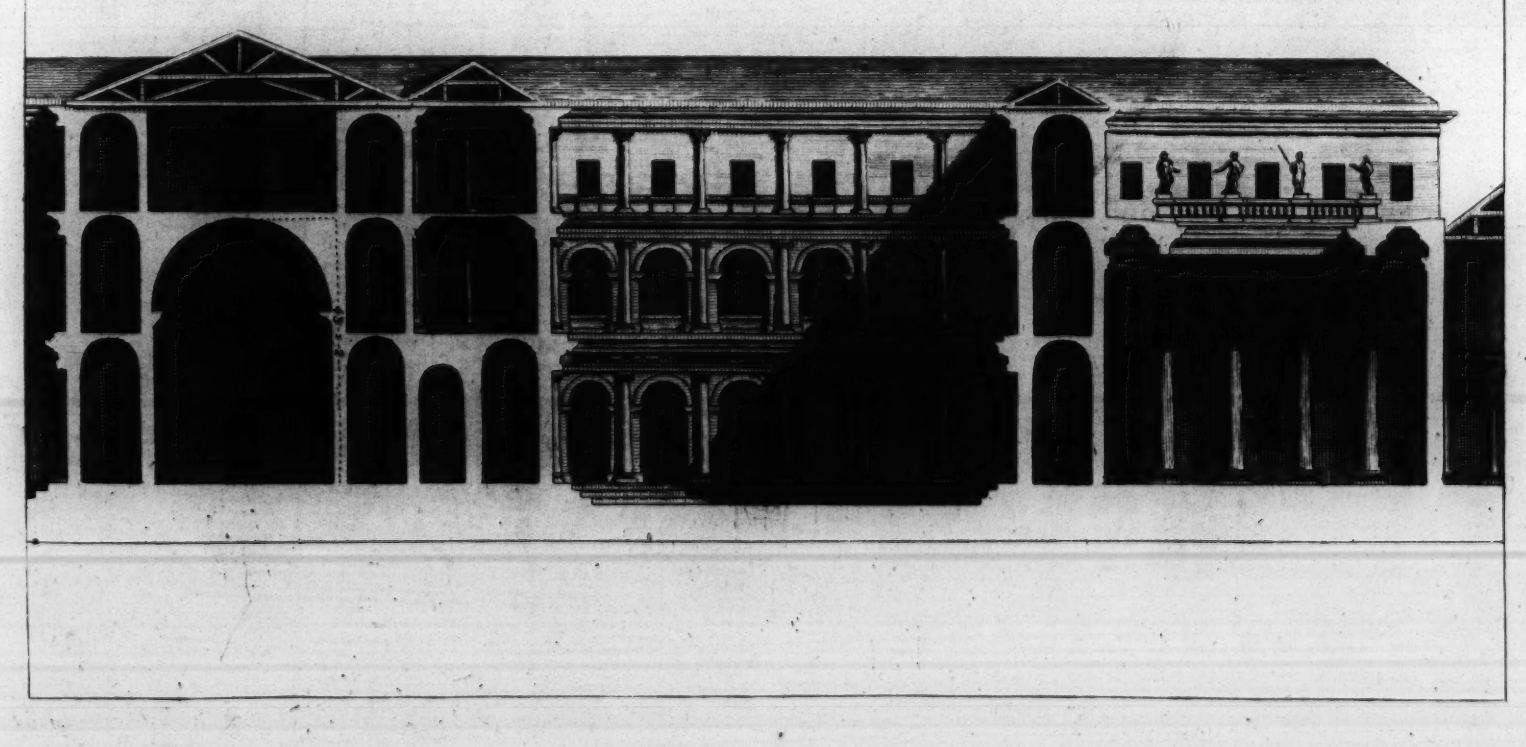
J. Harris fecit


E
F
A
F
F
B
C
D
G
G
6 = 10
6 = 10
6 = 10

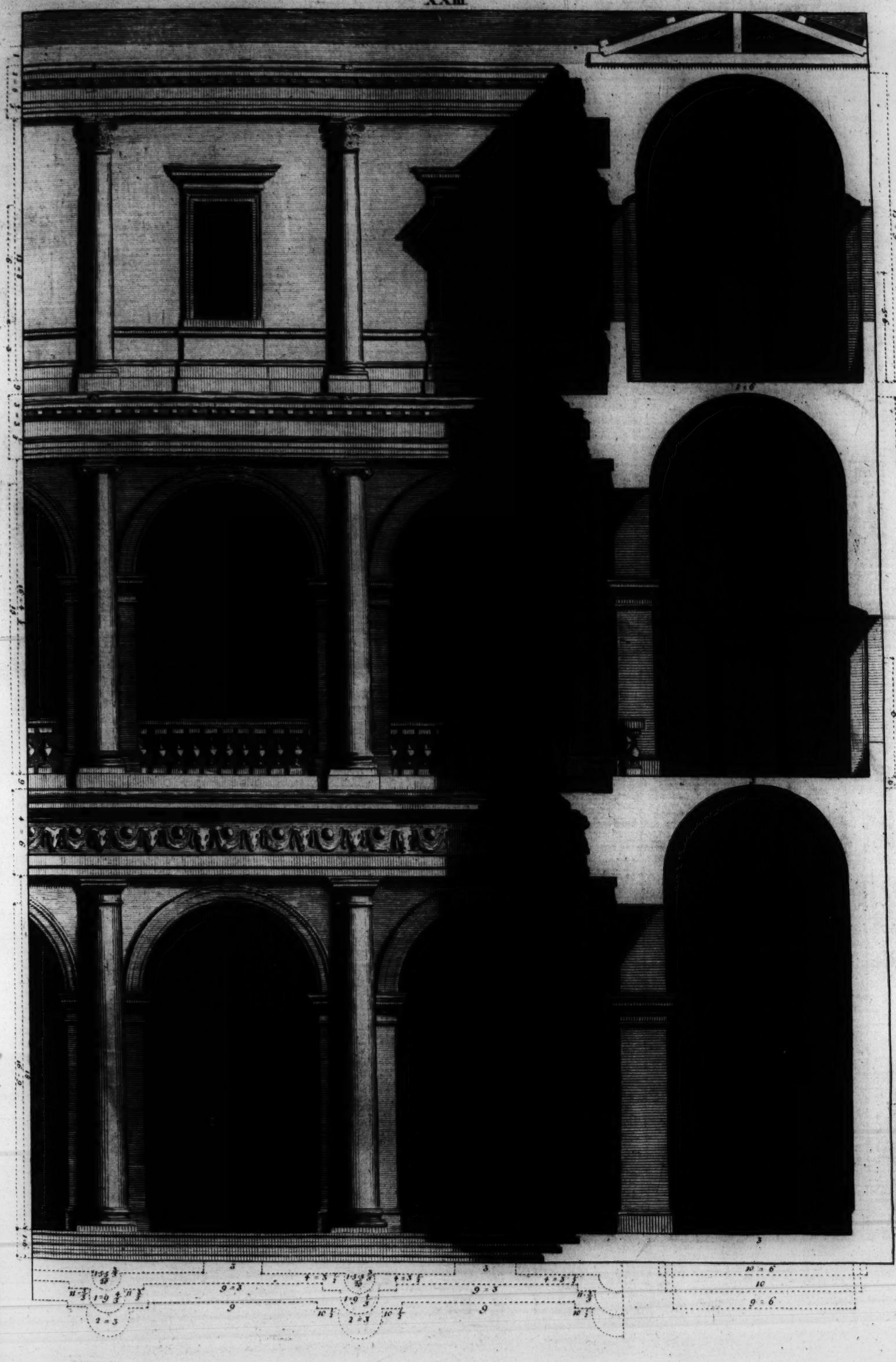

F
G
A
G
L
L
E
E
B
C
D
K
K
H




A
B
A
C
D
E
Piedi
Viaentini
3 10 20 40 70 100 130

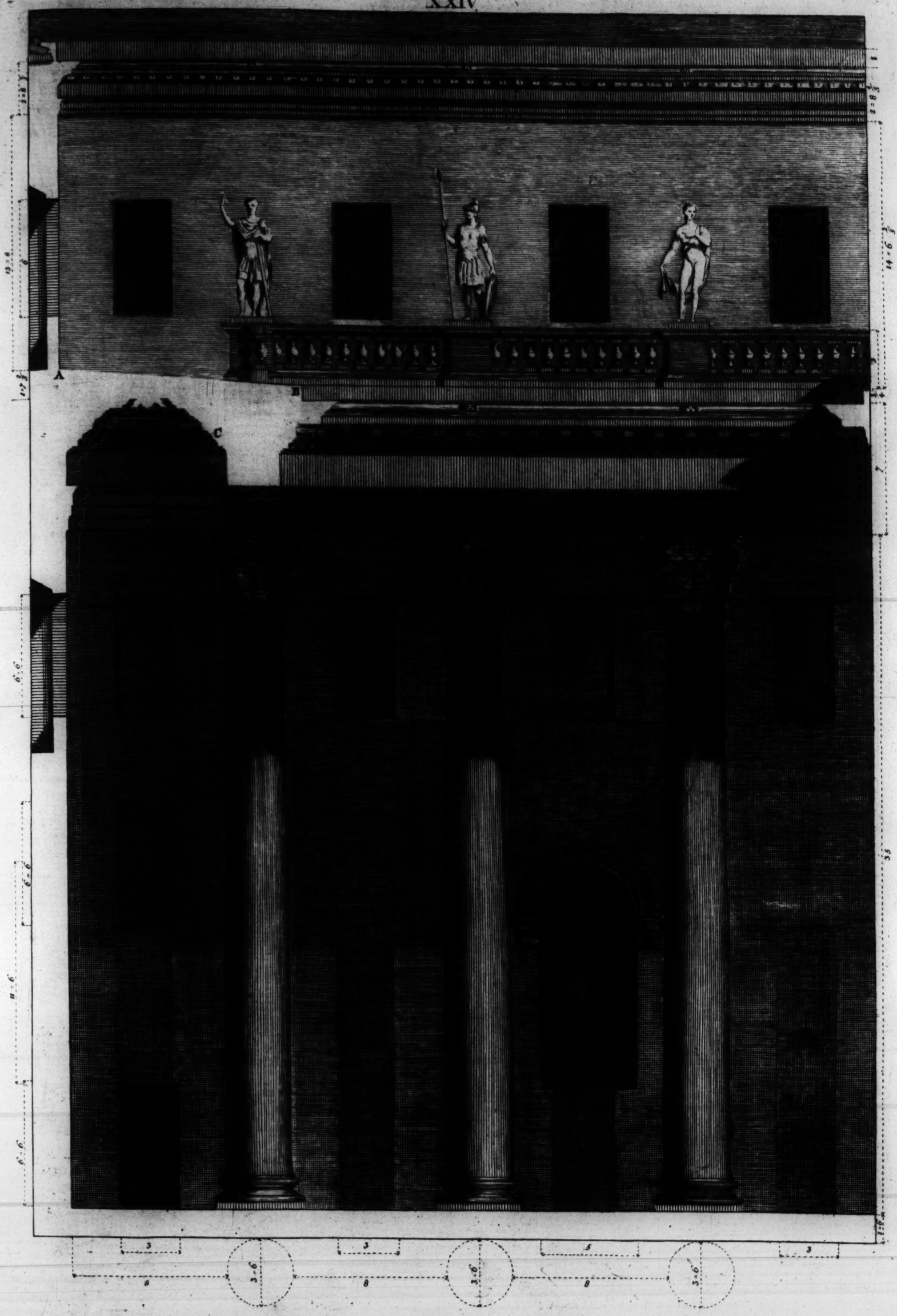


22 OCT 78

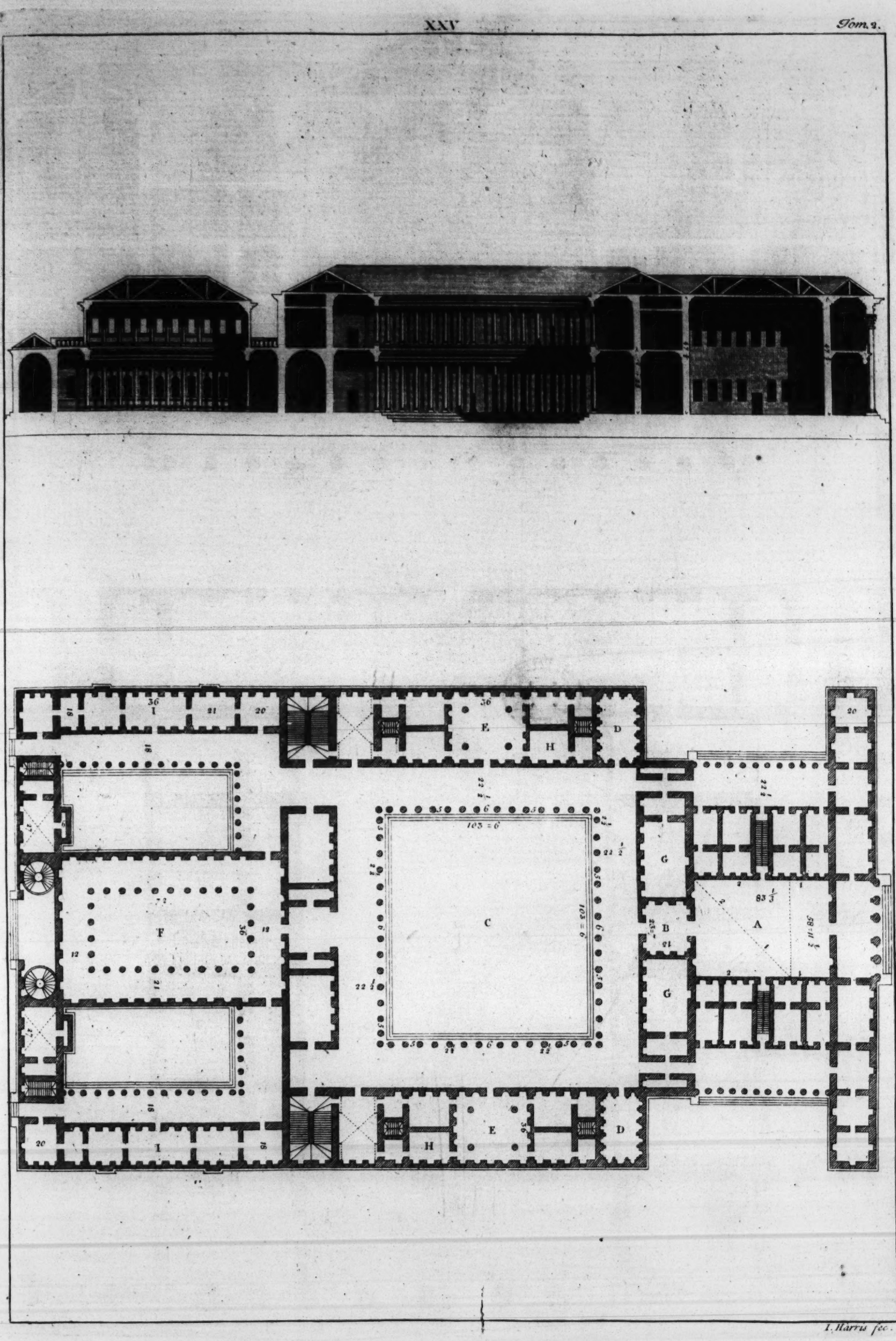


SEP 06 '26

XXIV

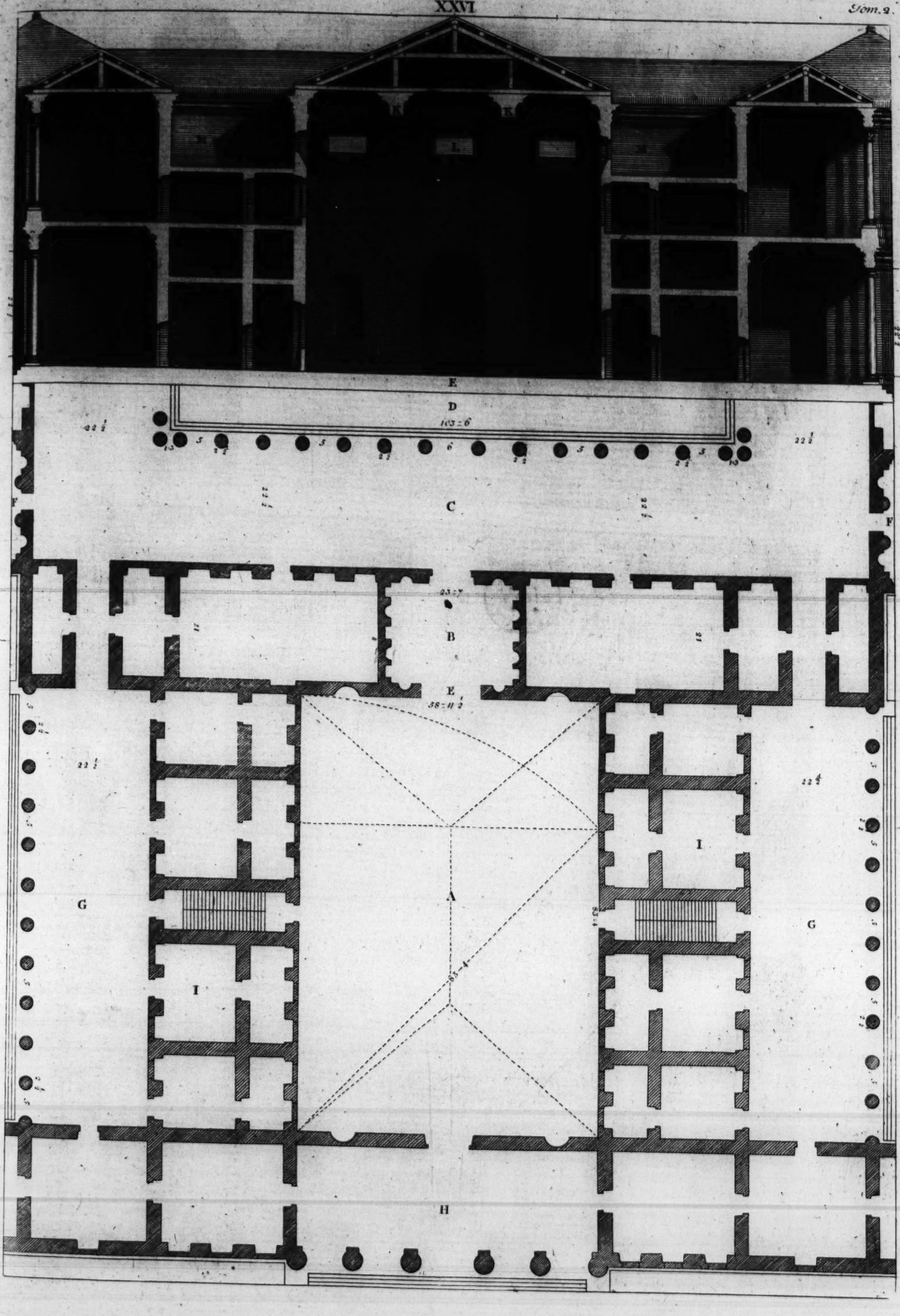


BIBLIOTECA
22 OCT 25
NACIONAL

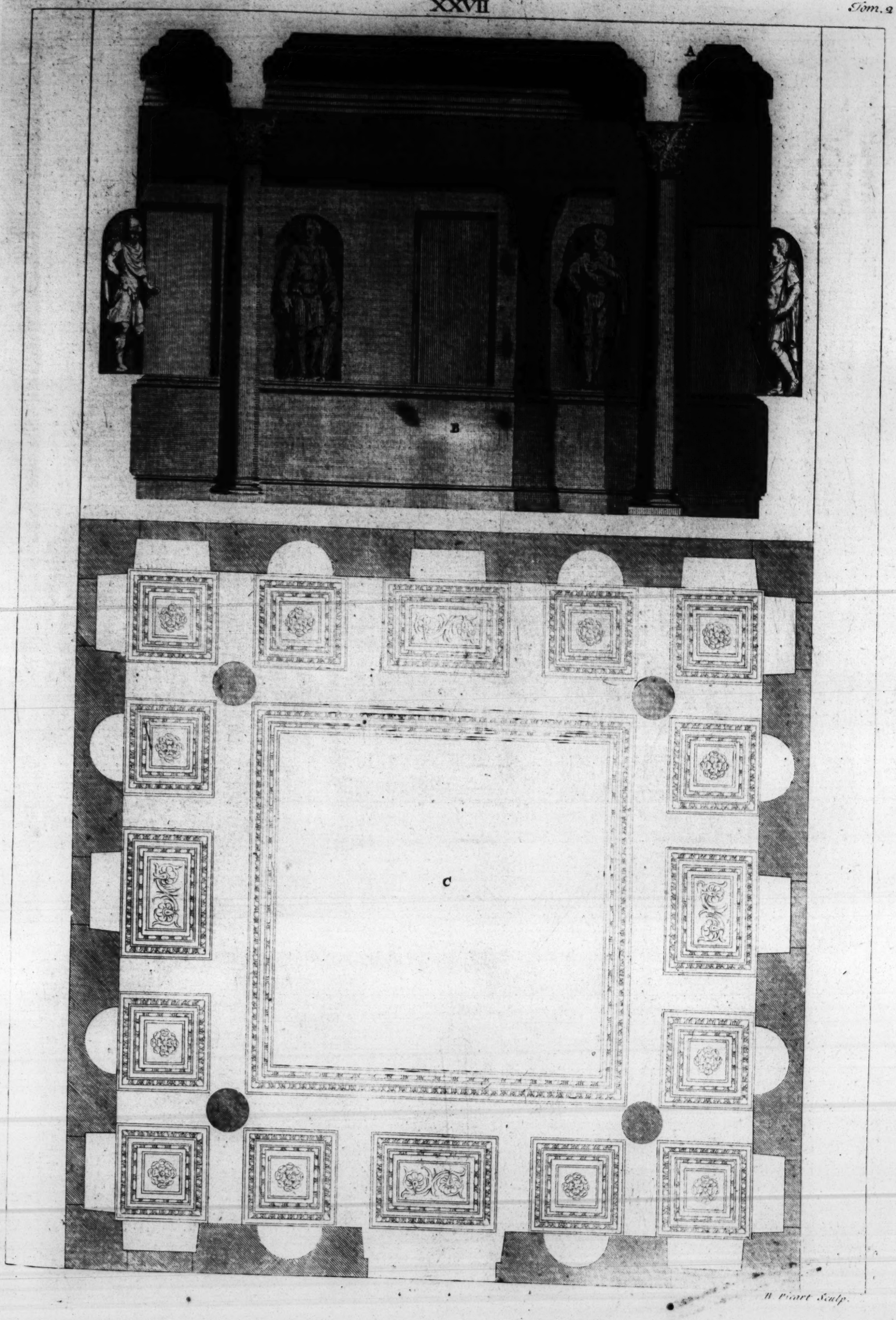


I. Harris fec.

PUBLIC LIBRARY
22 OCT 75

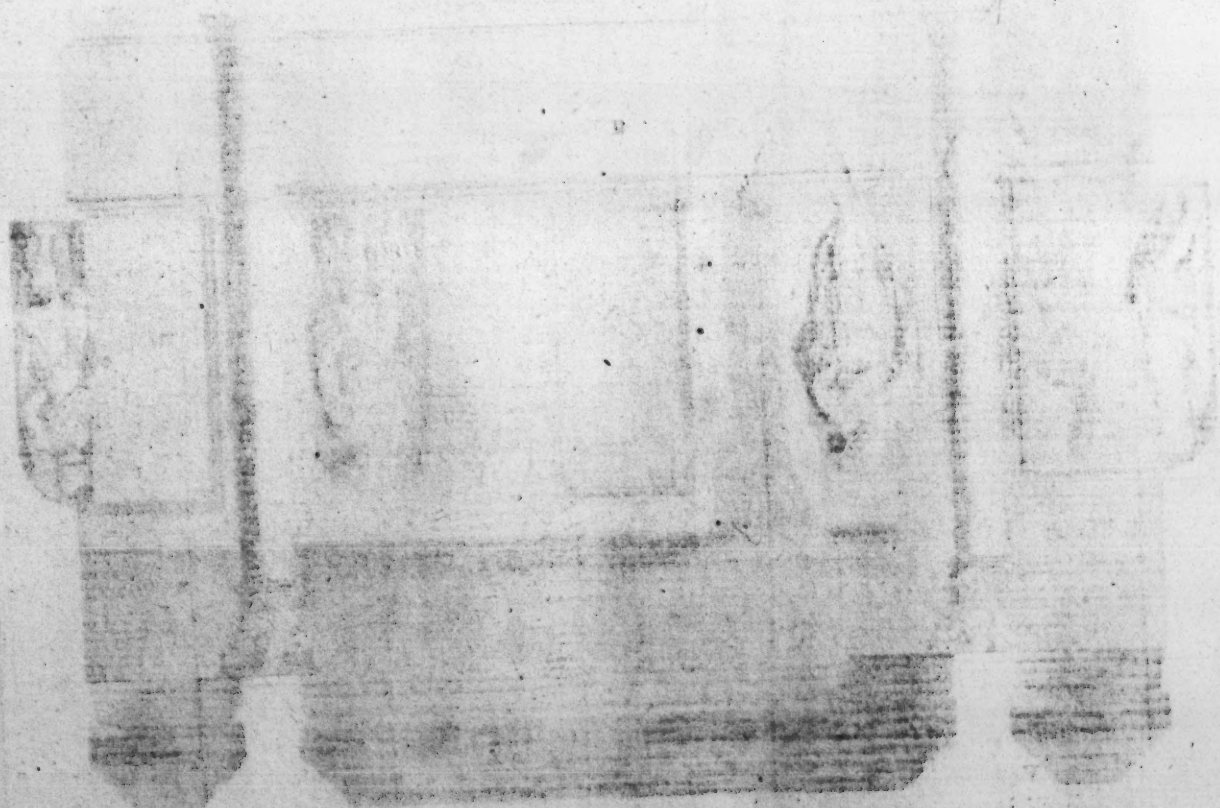

E
D
103=6
C
F
B
E
38=11 1/2
A
I
G
H

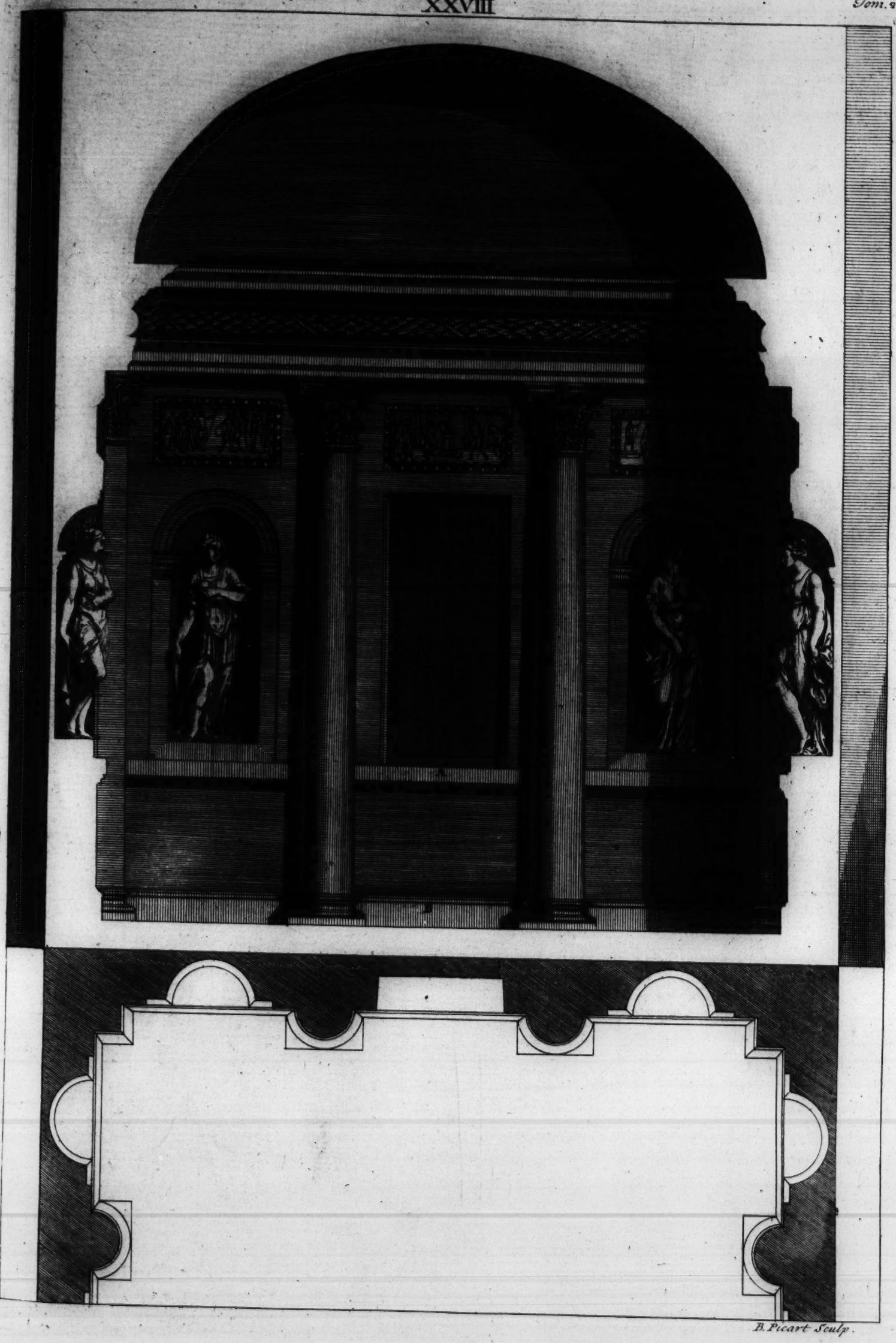
BIBLIOTECA
N.º 30.55
CENTRAL



B Picart Sculp.

BIBLIOTECA
22 OCT 75
CENTRAL





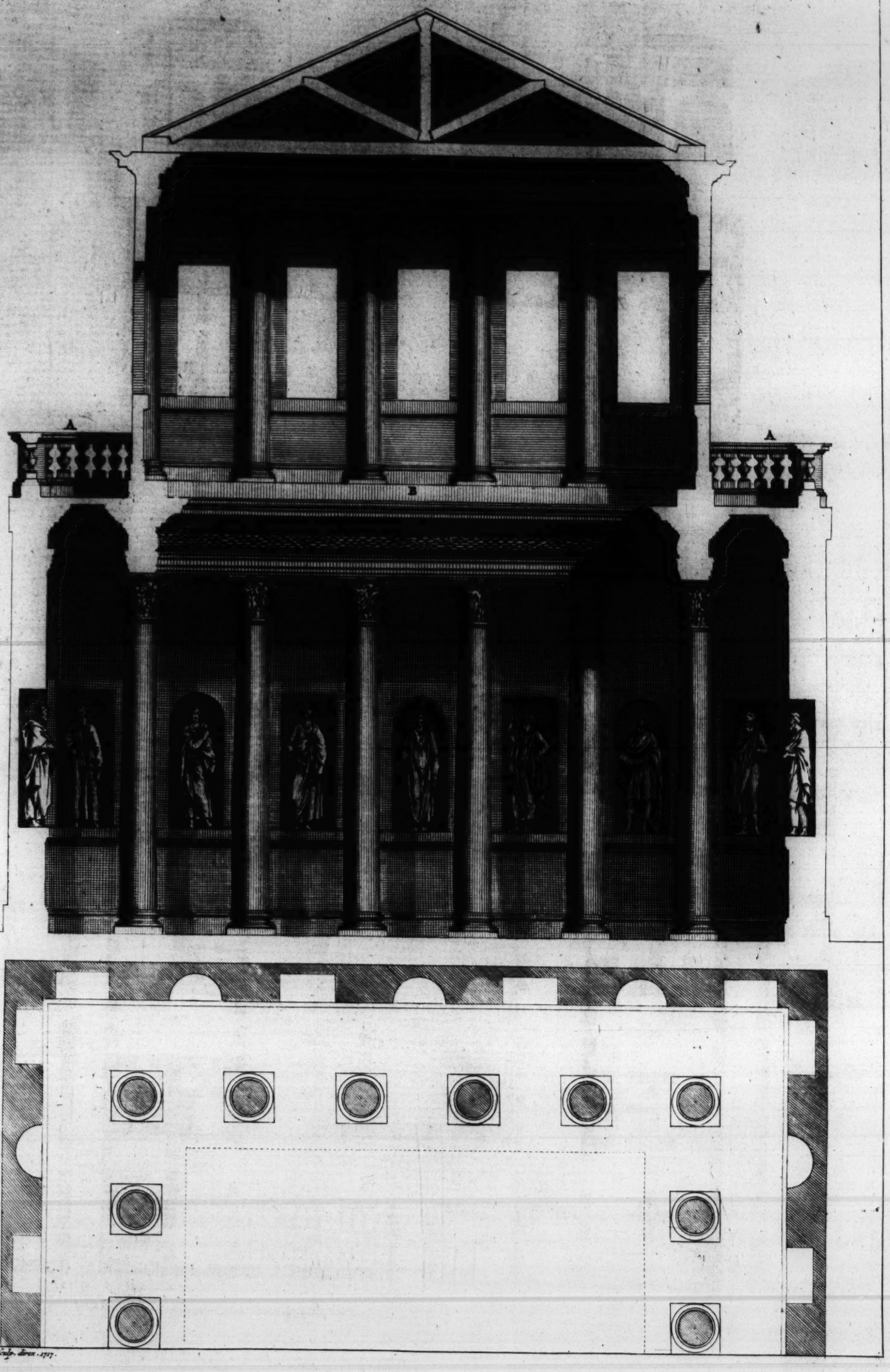
B. Picart Sculp.

ARCHIVES
22.06.75
PARIS

A

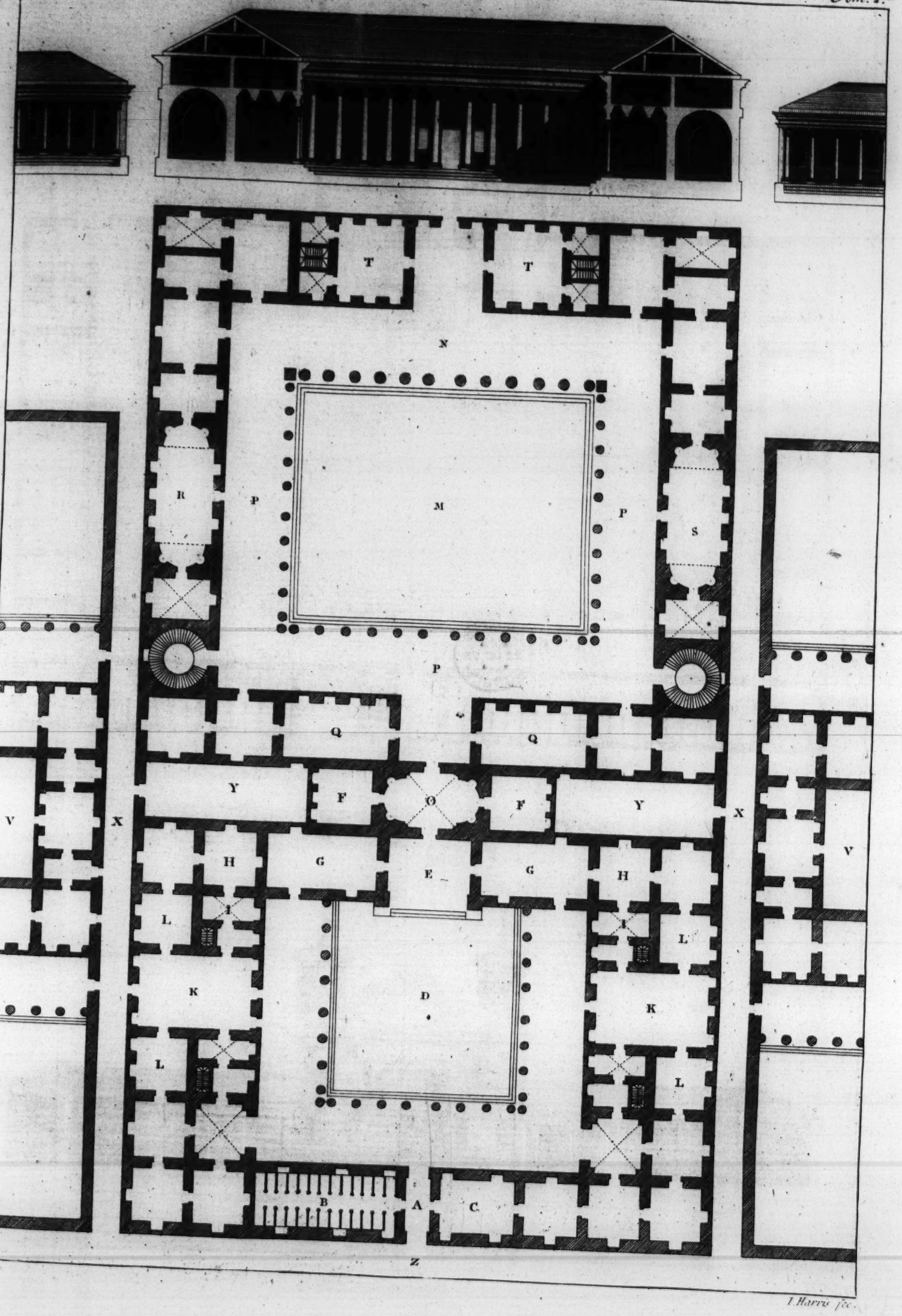
B. Picart Sculp.

PARIS
25 OCT 26

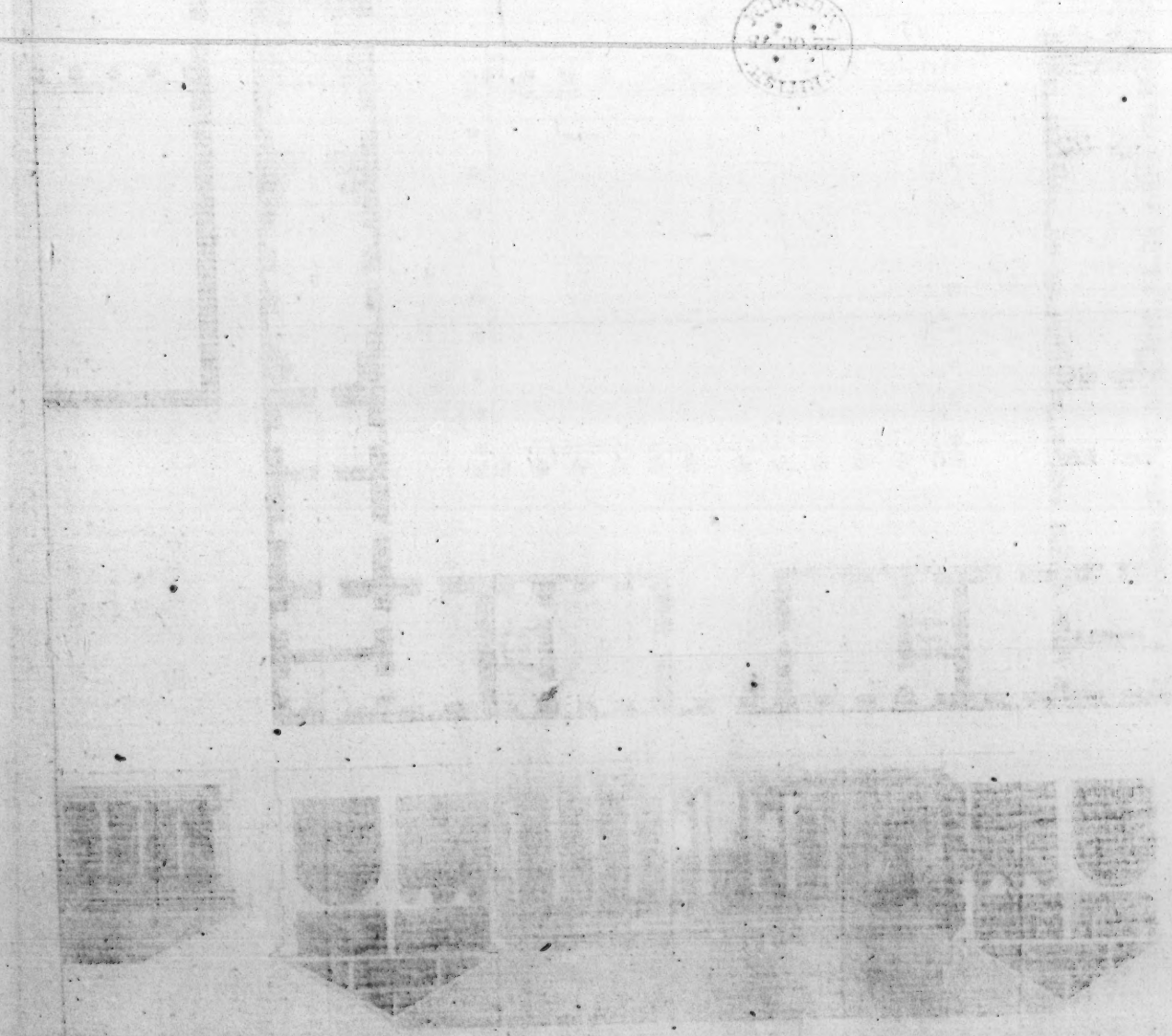


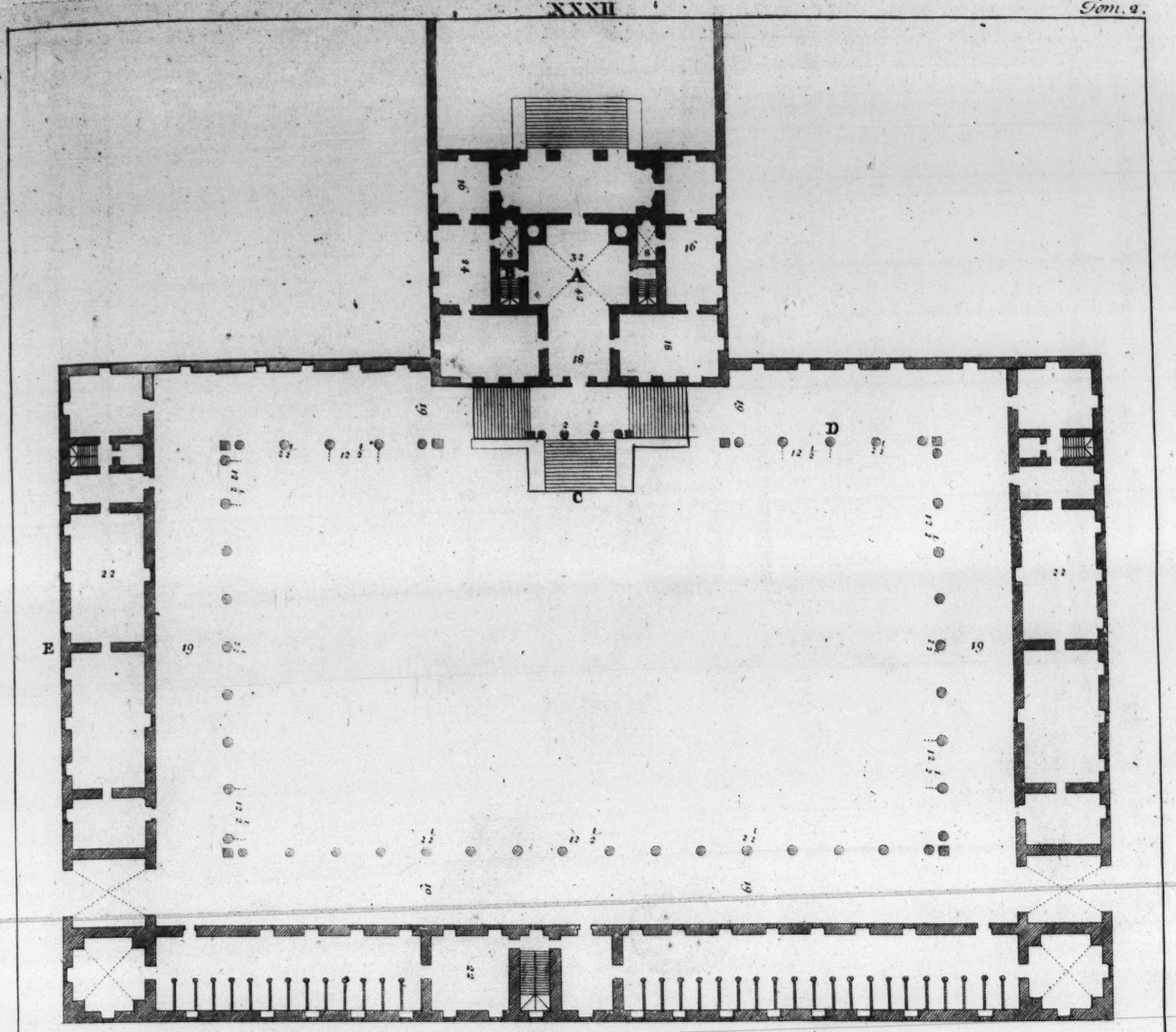
B. Picart sculp. direx. 1727.

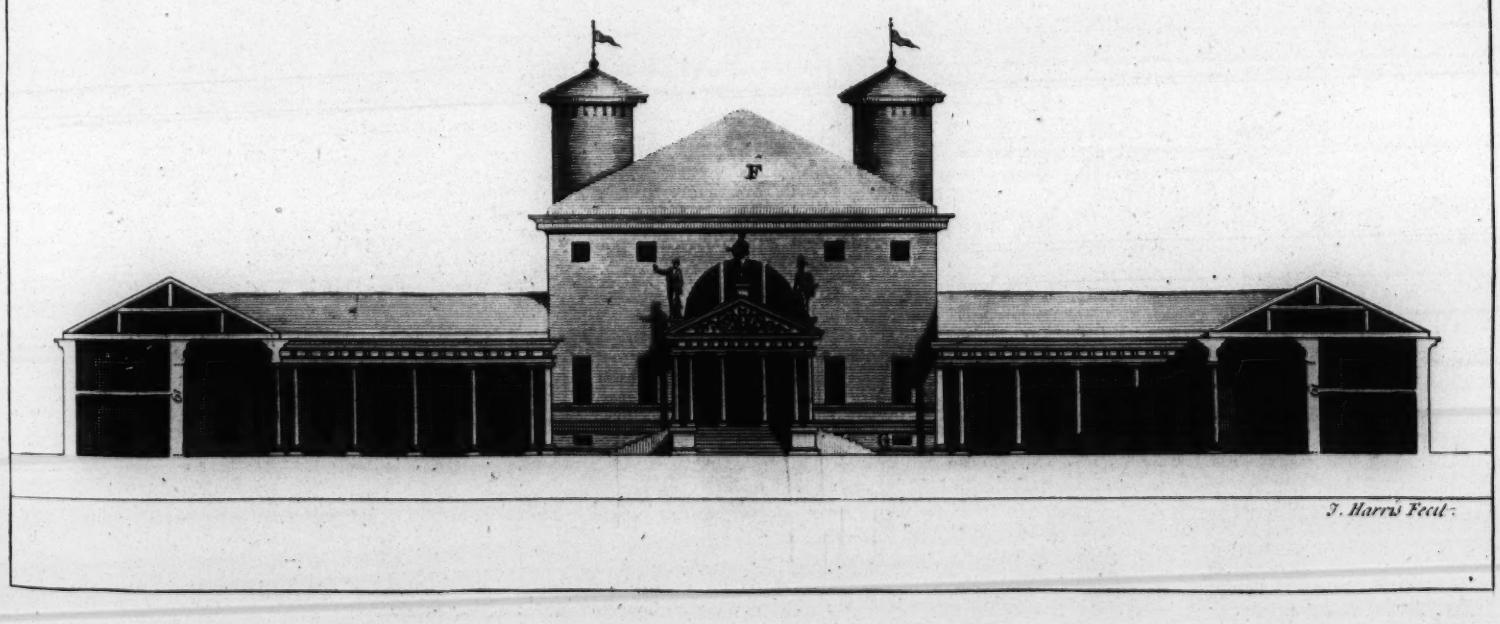
22 OCT 26



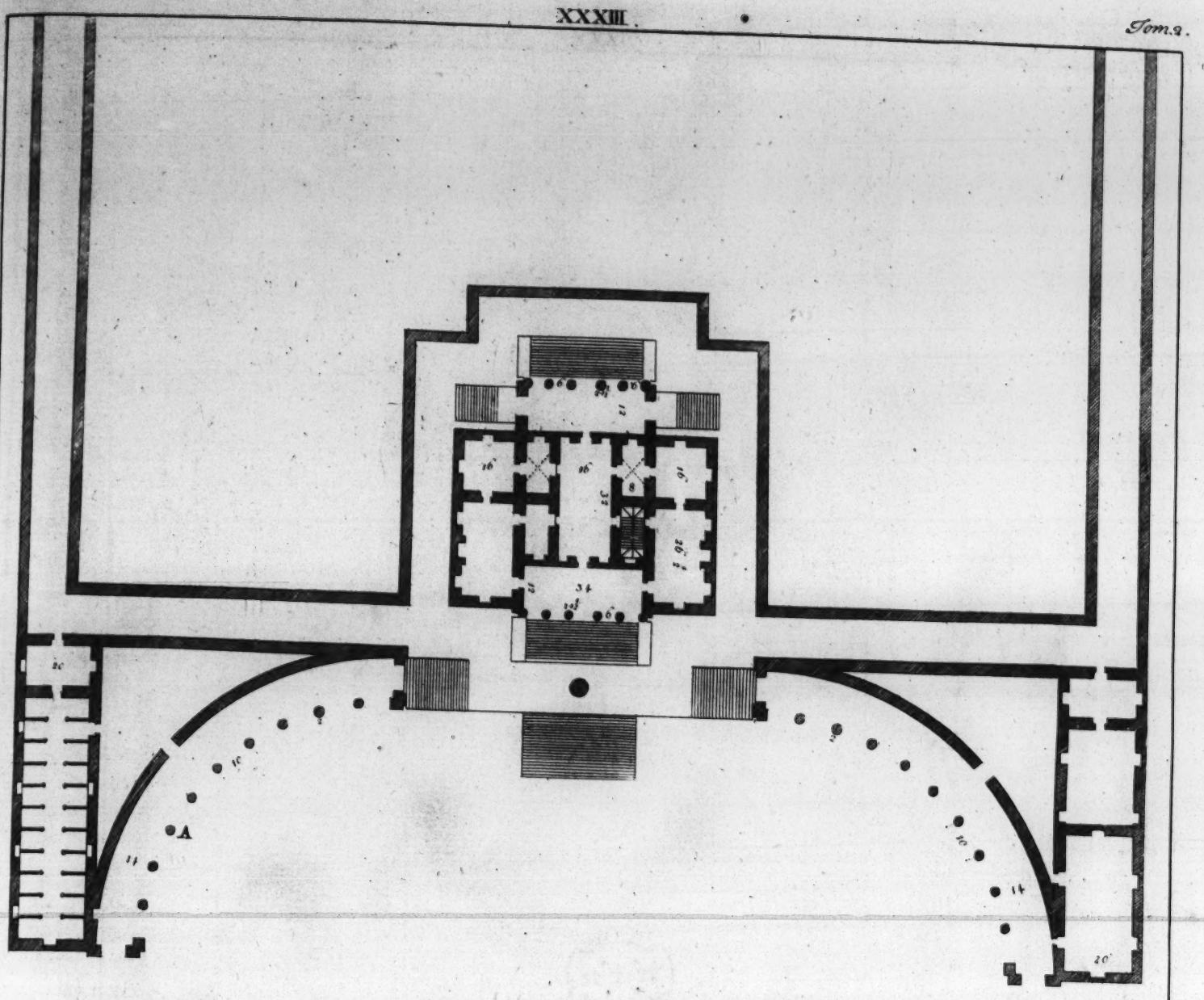
I. Harris fec.

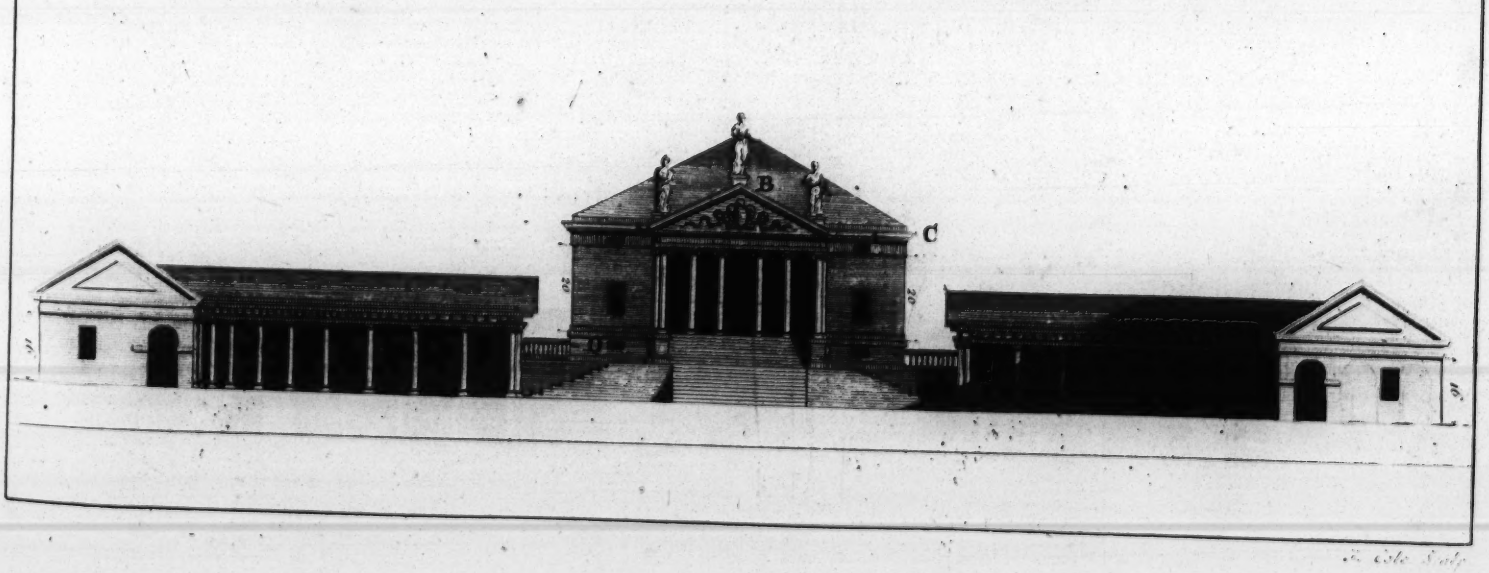




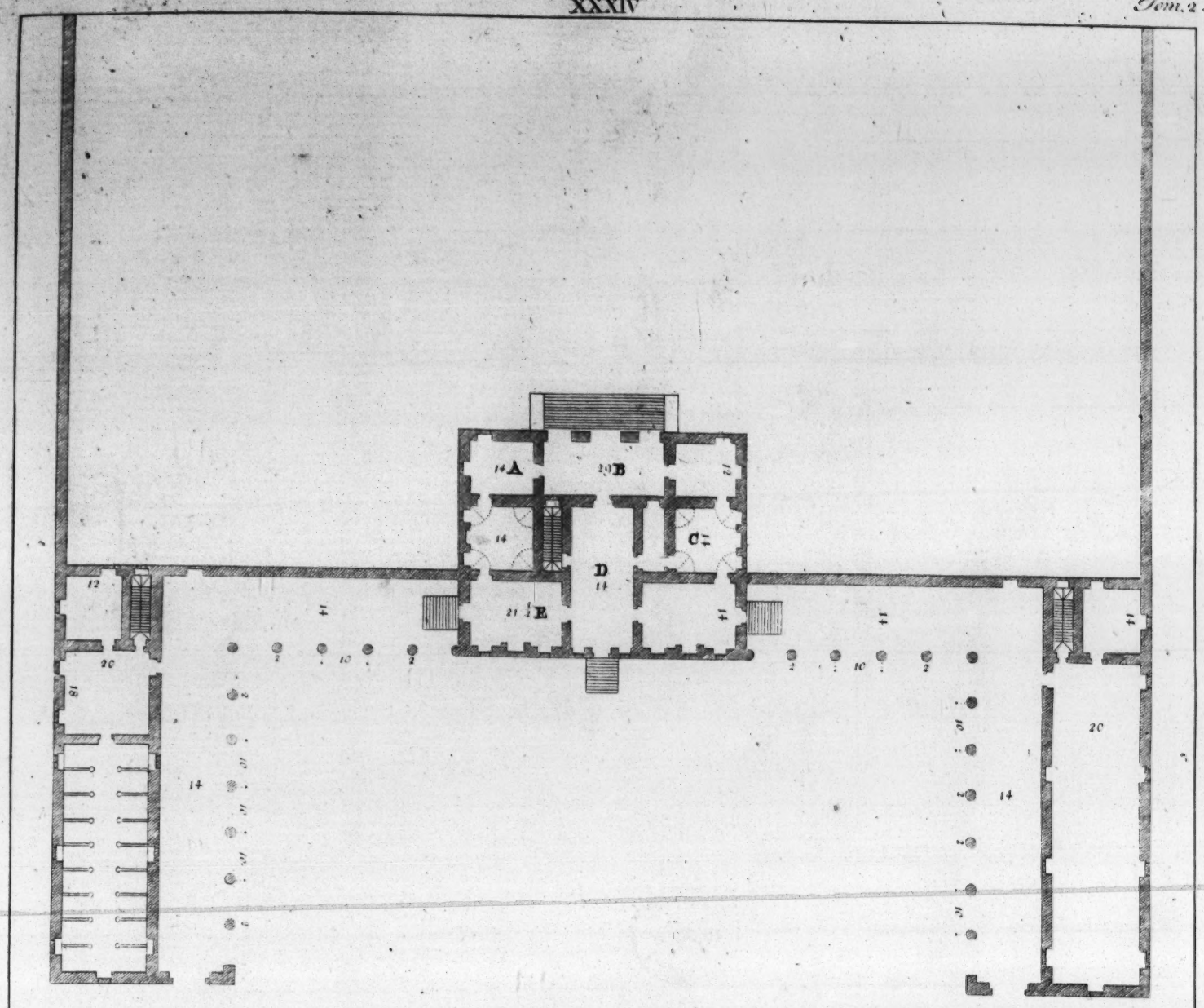


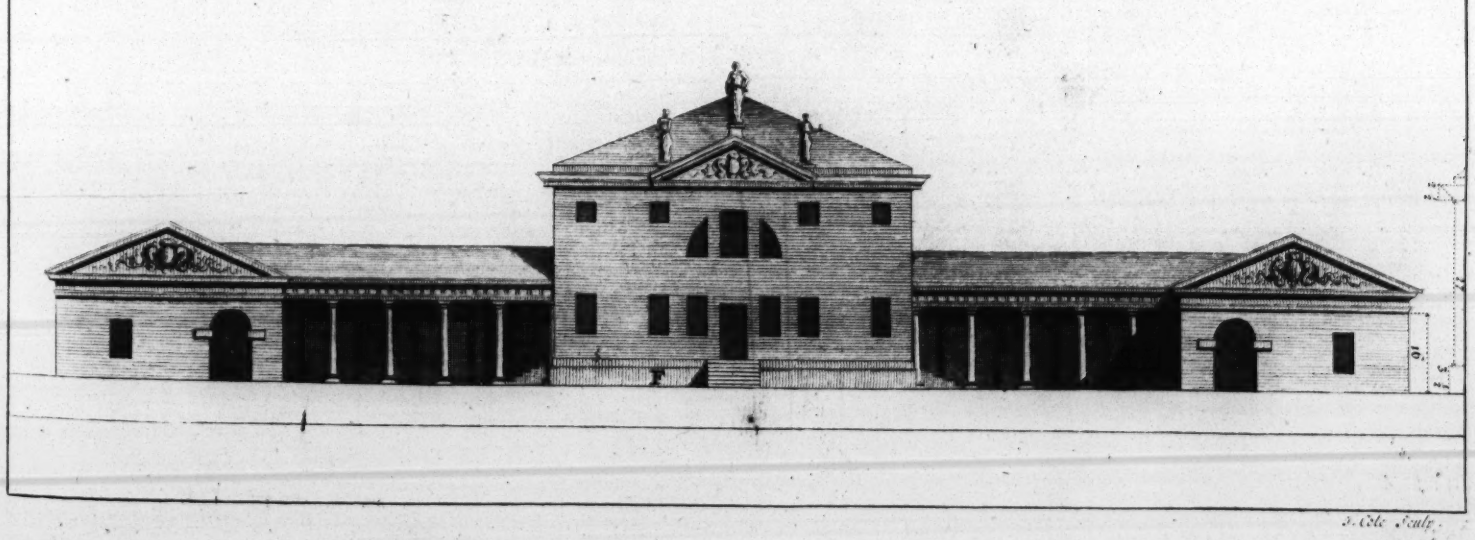
J. Harris Fecit.


A

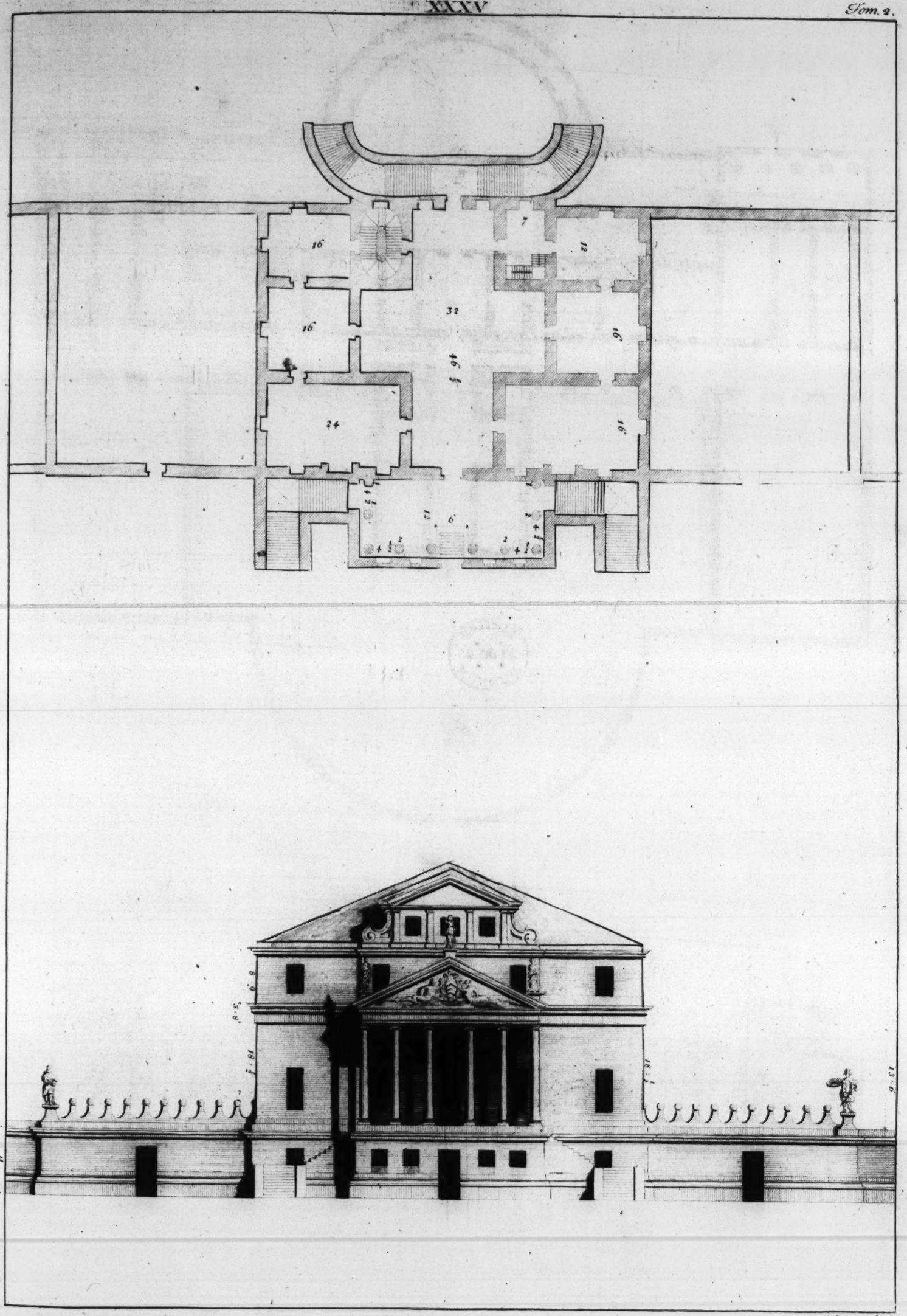

B
C

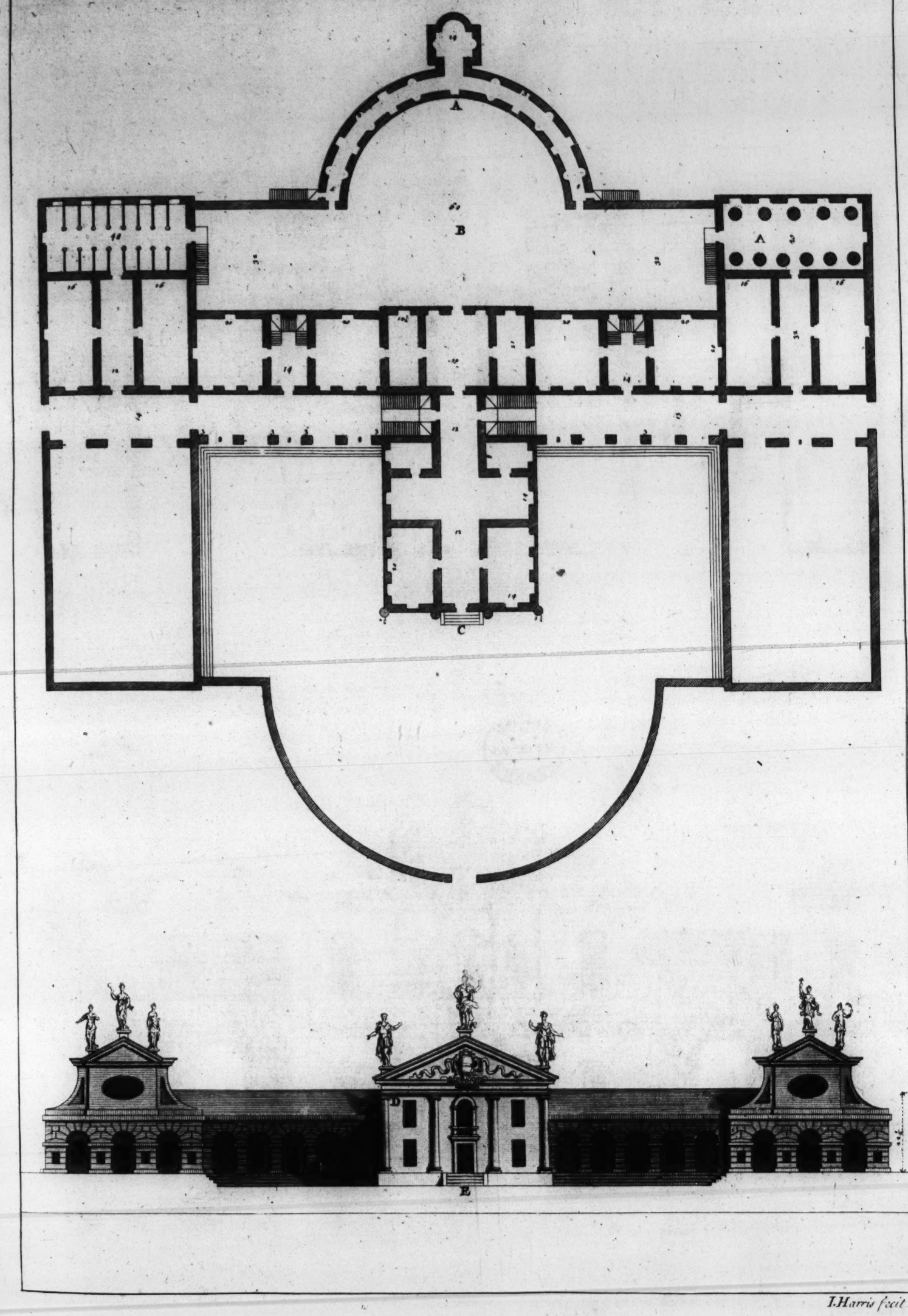
22 OCT 27
MUSEUM



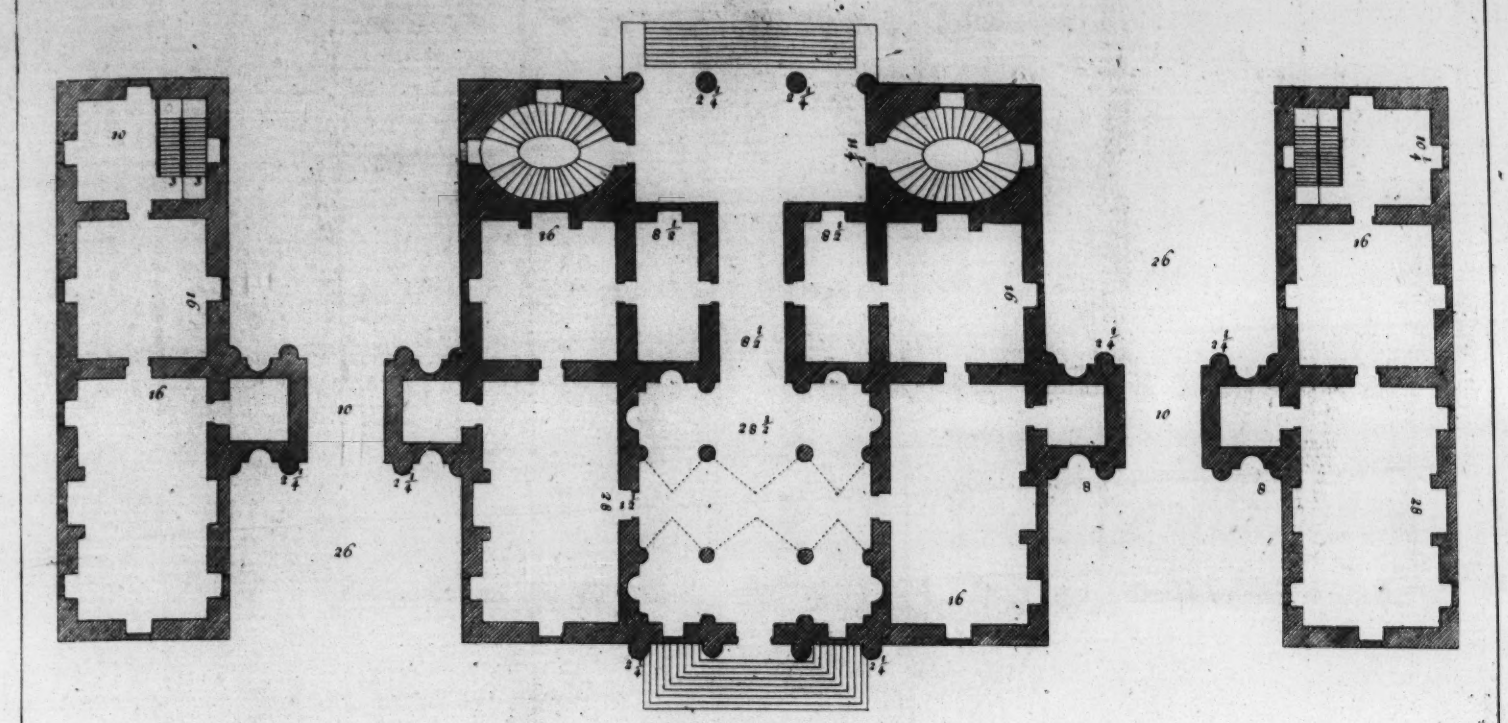


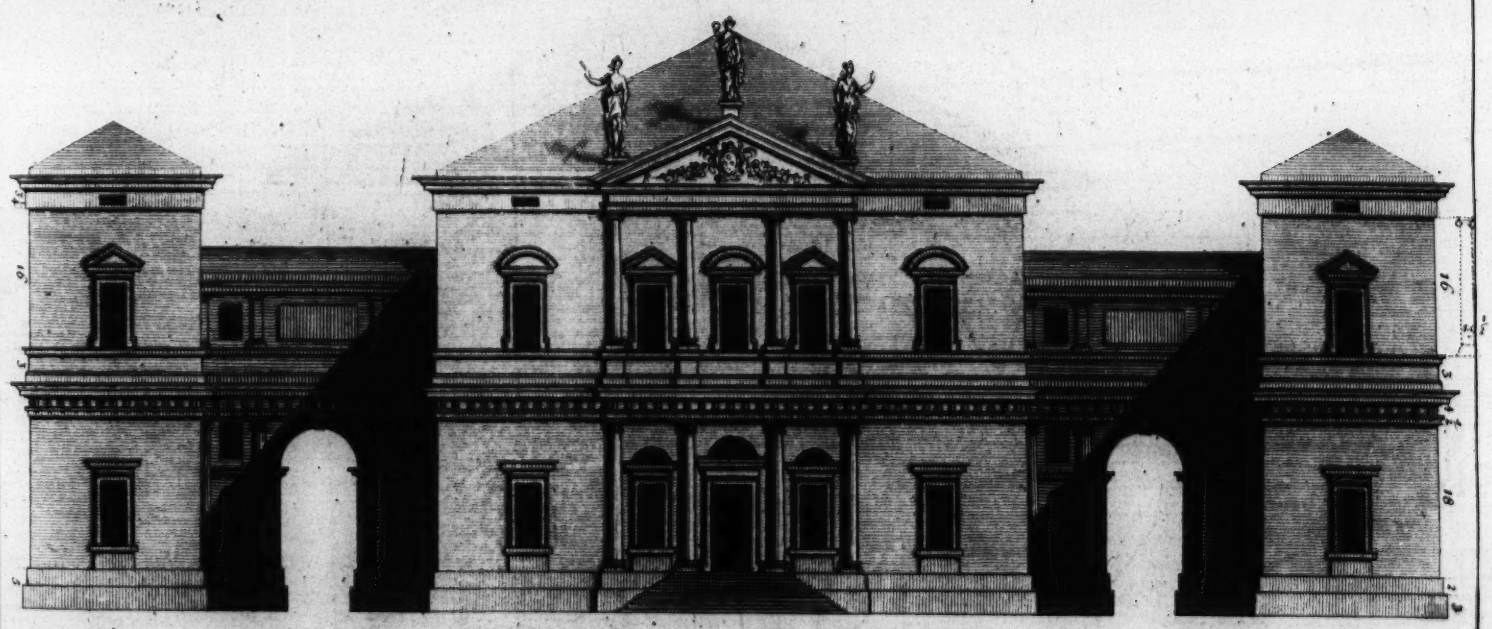
J. Gle Feulx


16
16
32
7
12
91
91
94
24
6
12
12
12



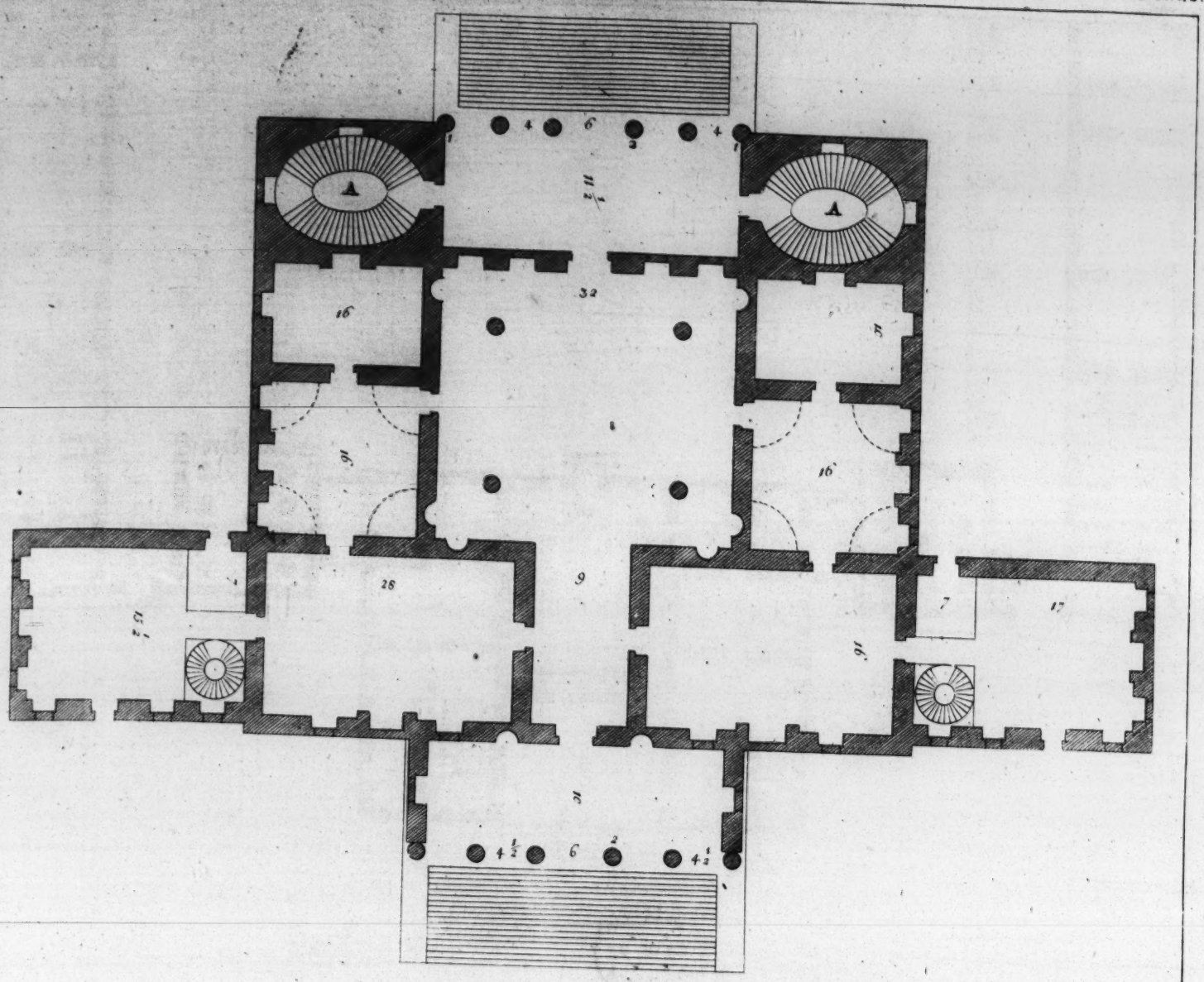
I.Harris fecit.

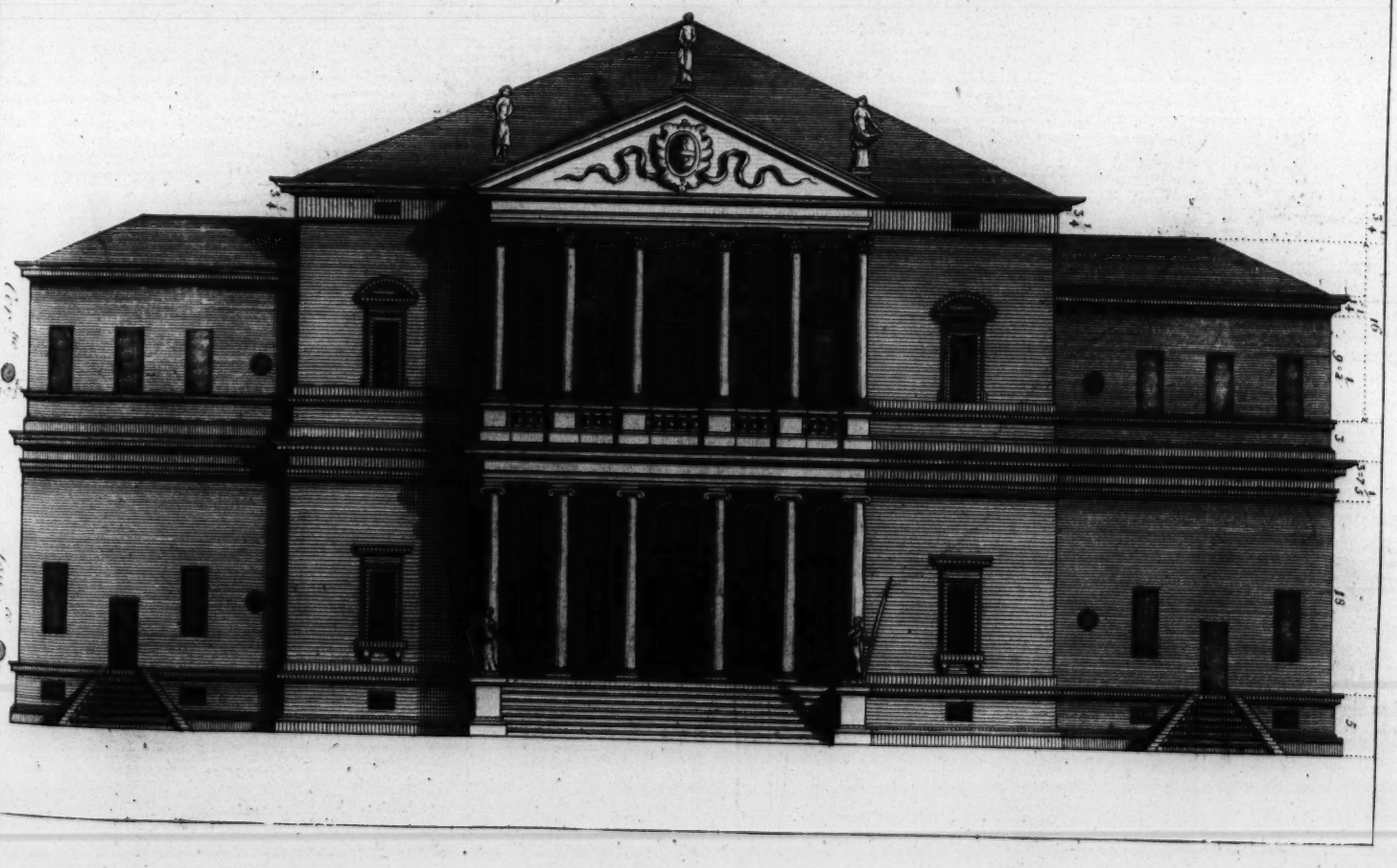


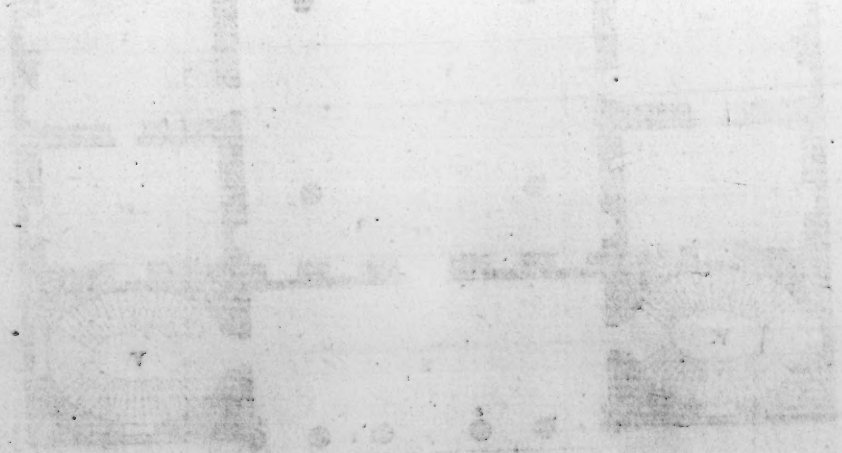


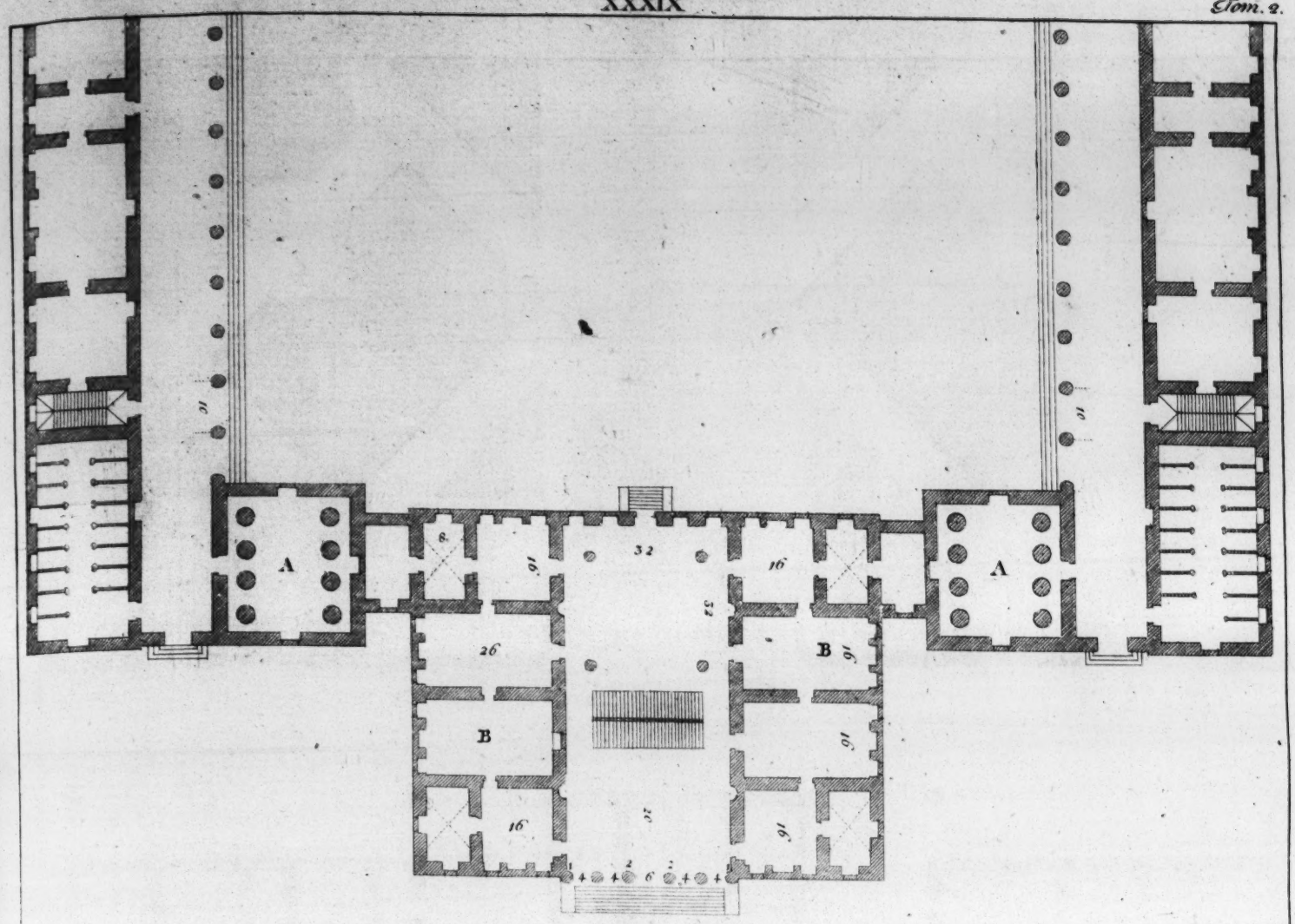
J. Harris Fecit.

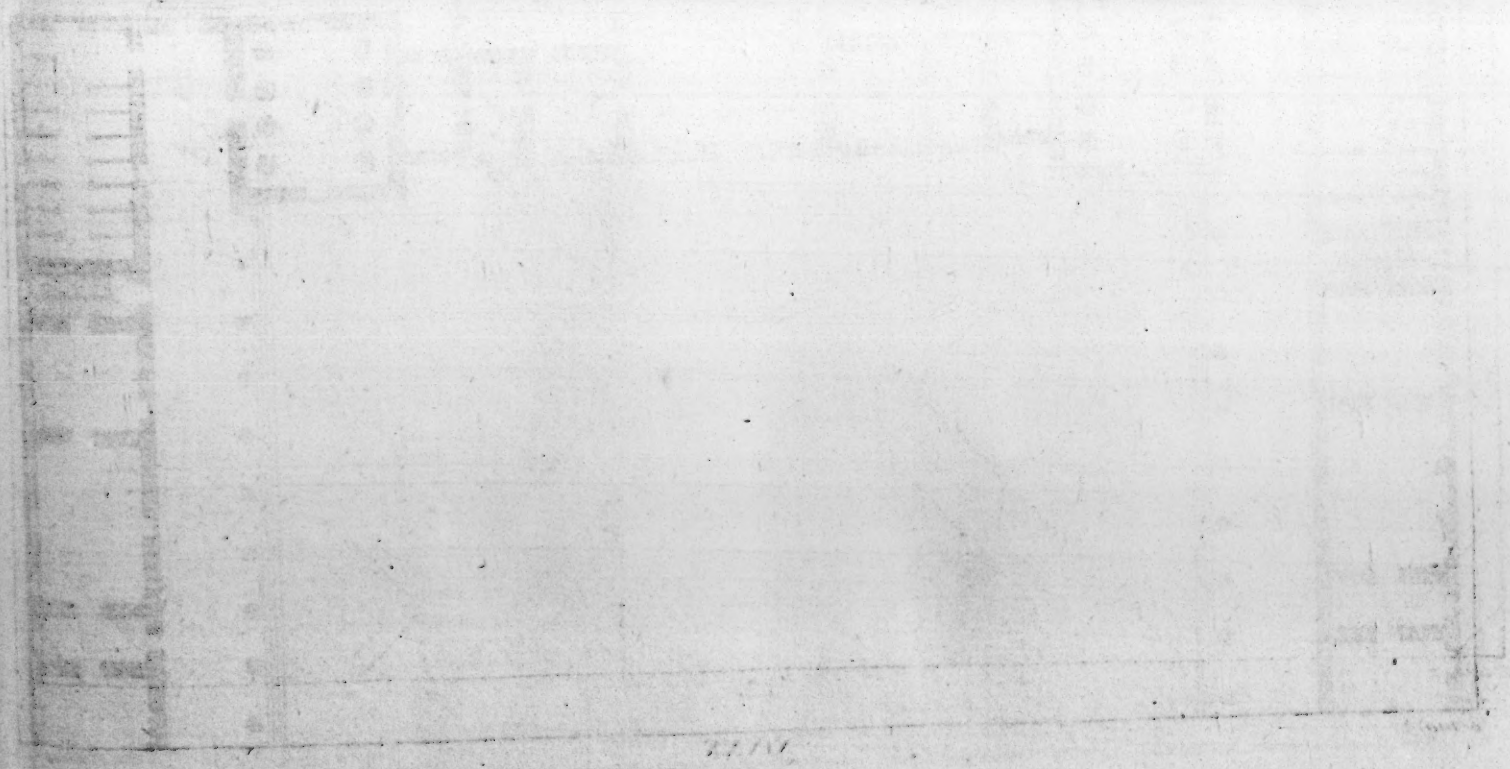
94 30 52

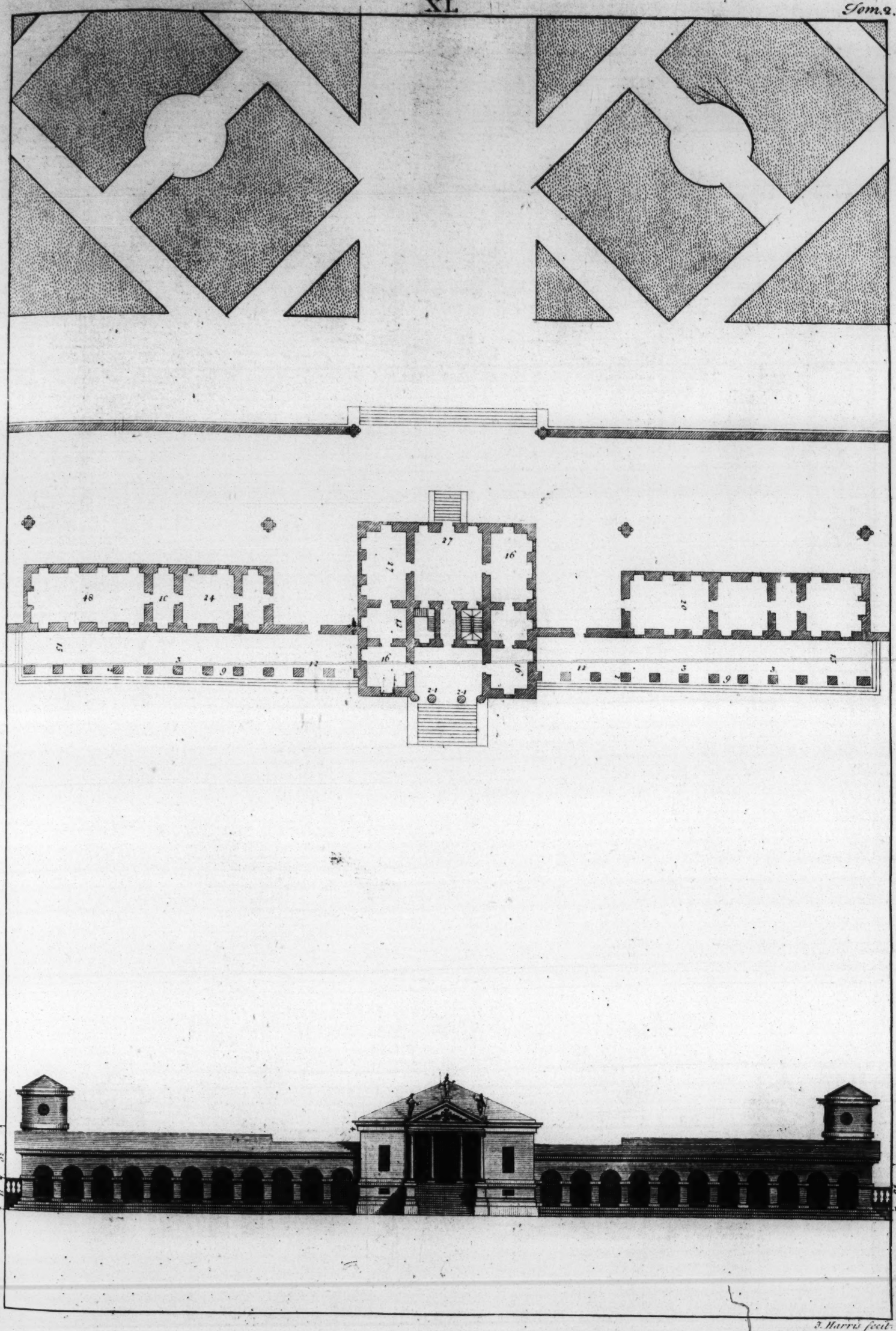

A
A
16
32
28
9
16
7
17
6
6



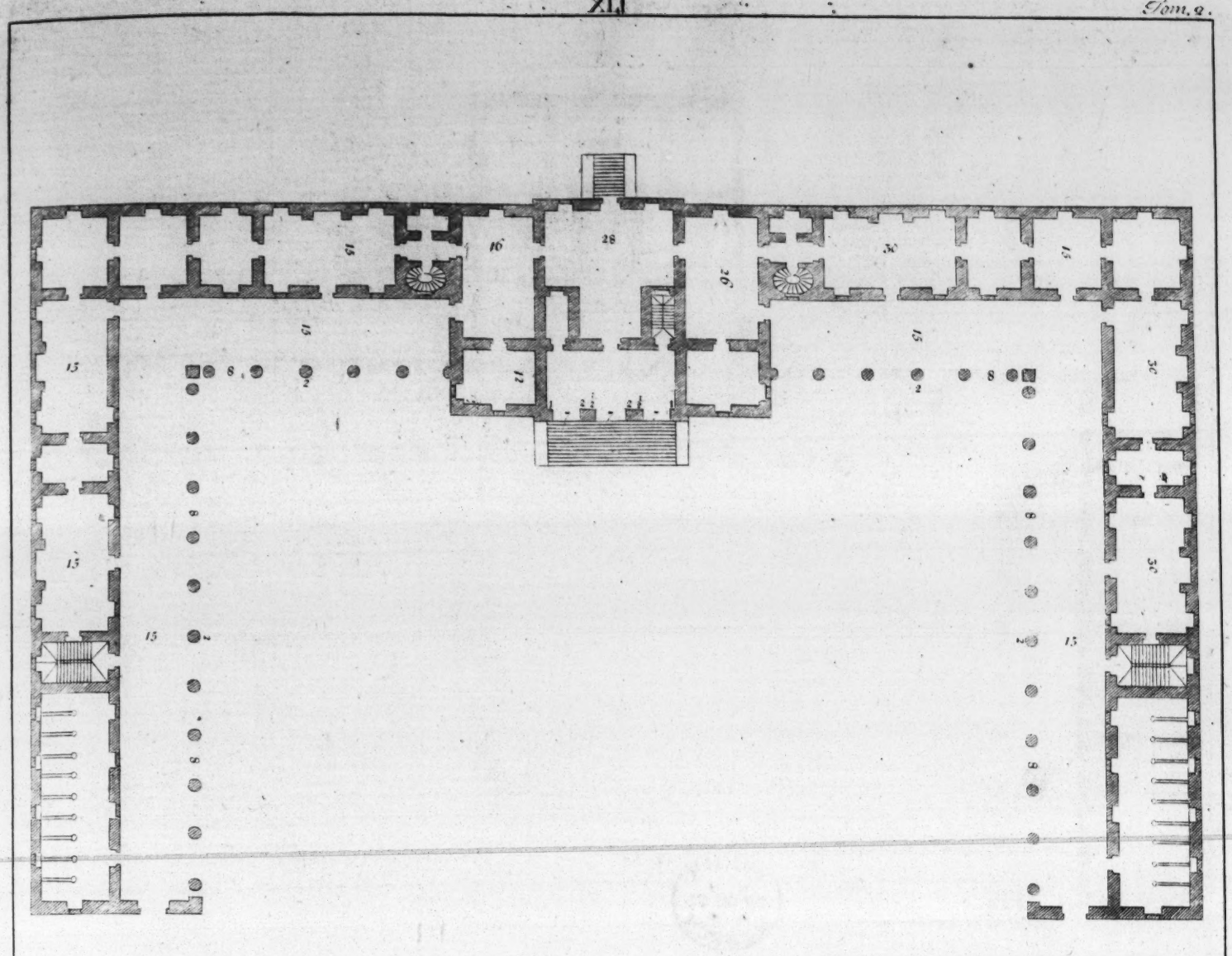



A
A
B
B
8
16
32
16
26
32
16
16
16



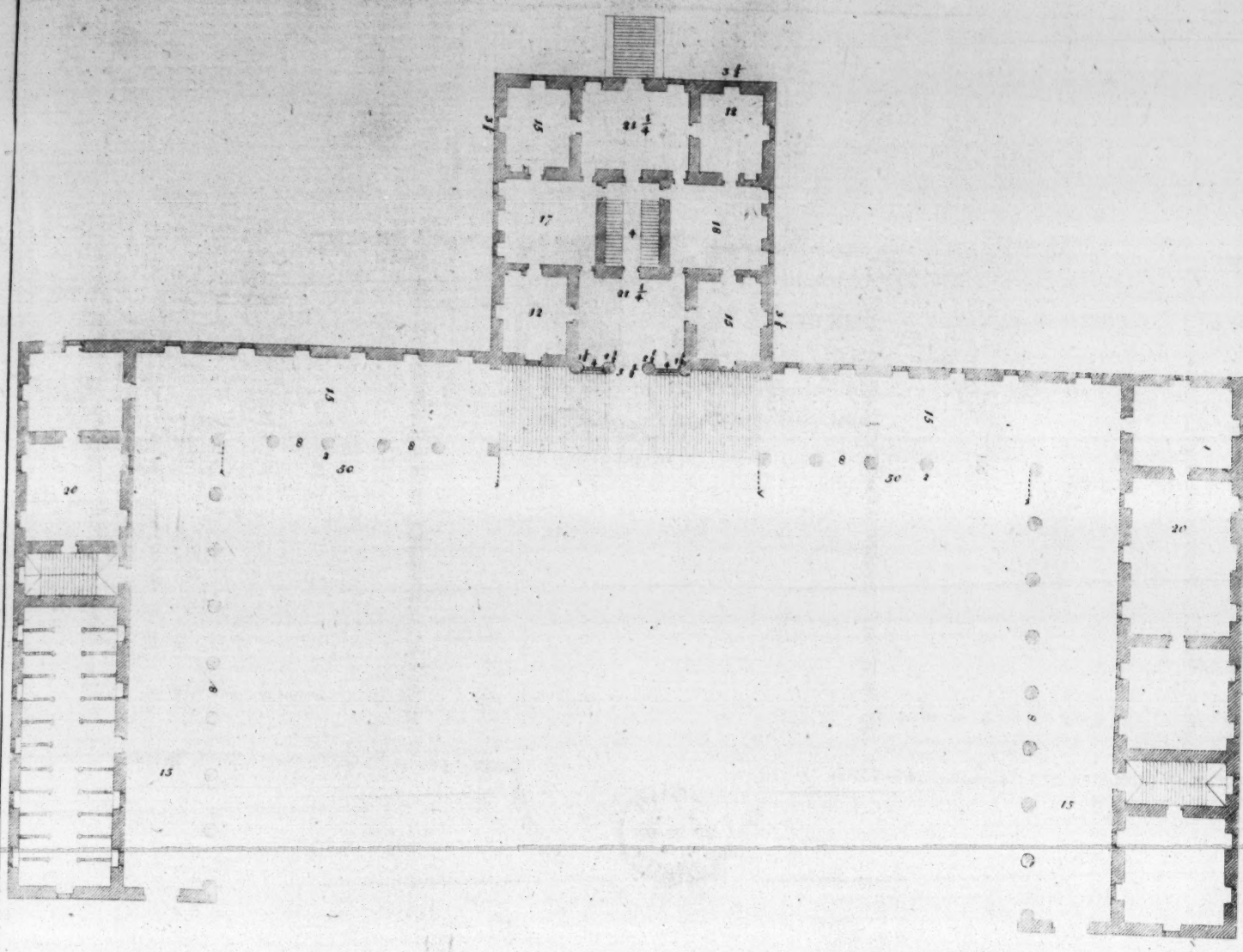


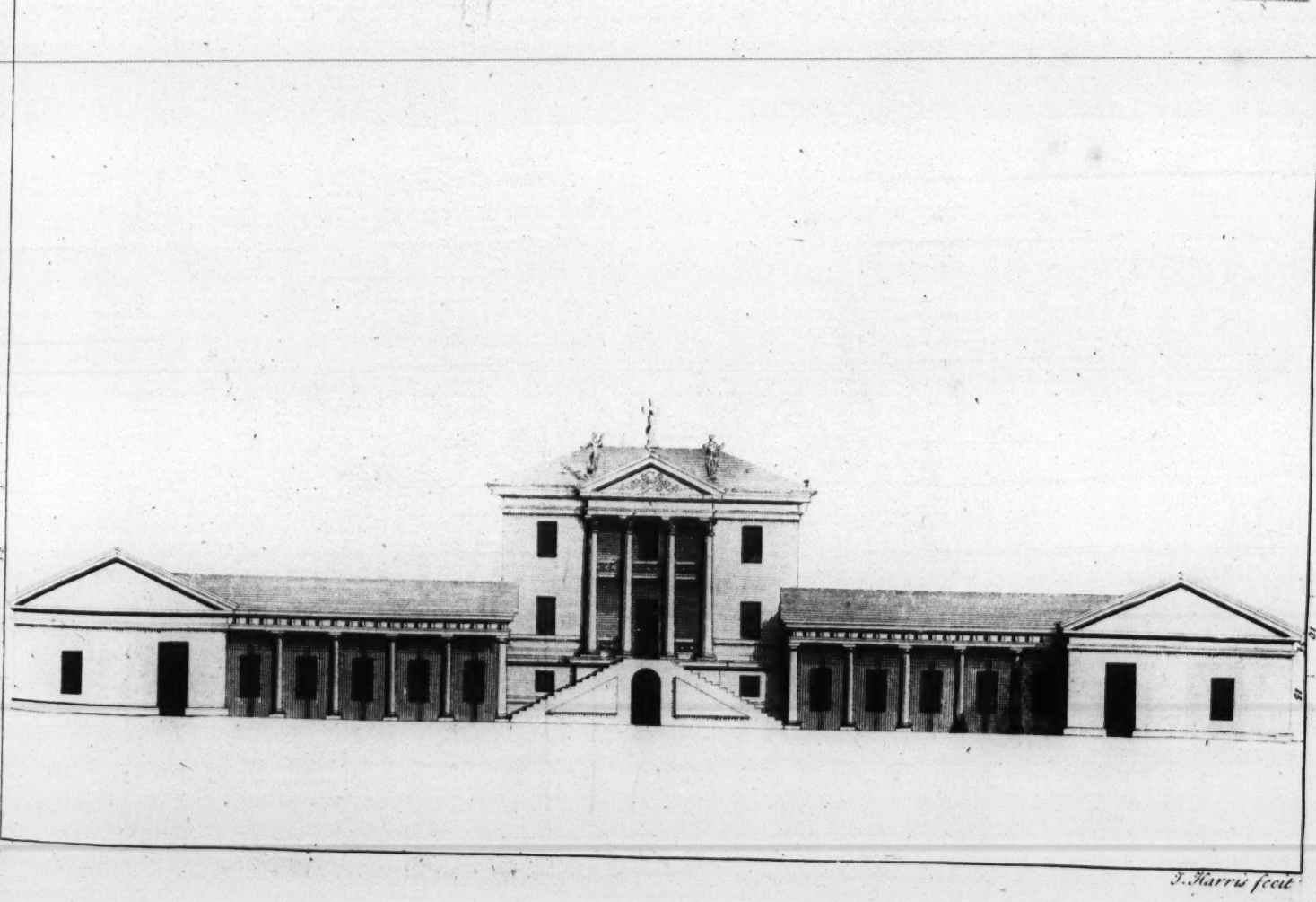
J. Harris fecit.



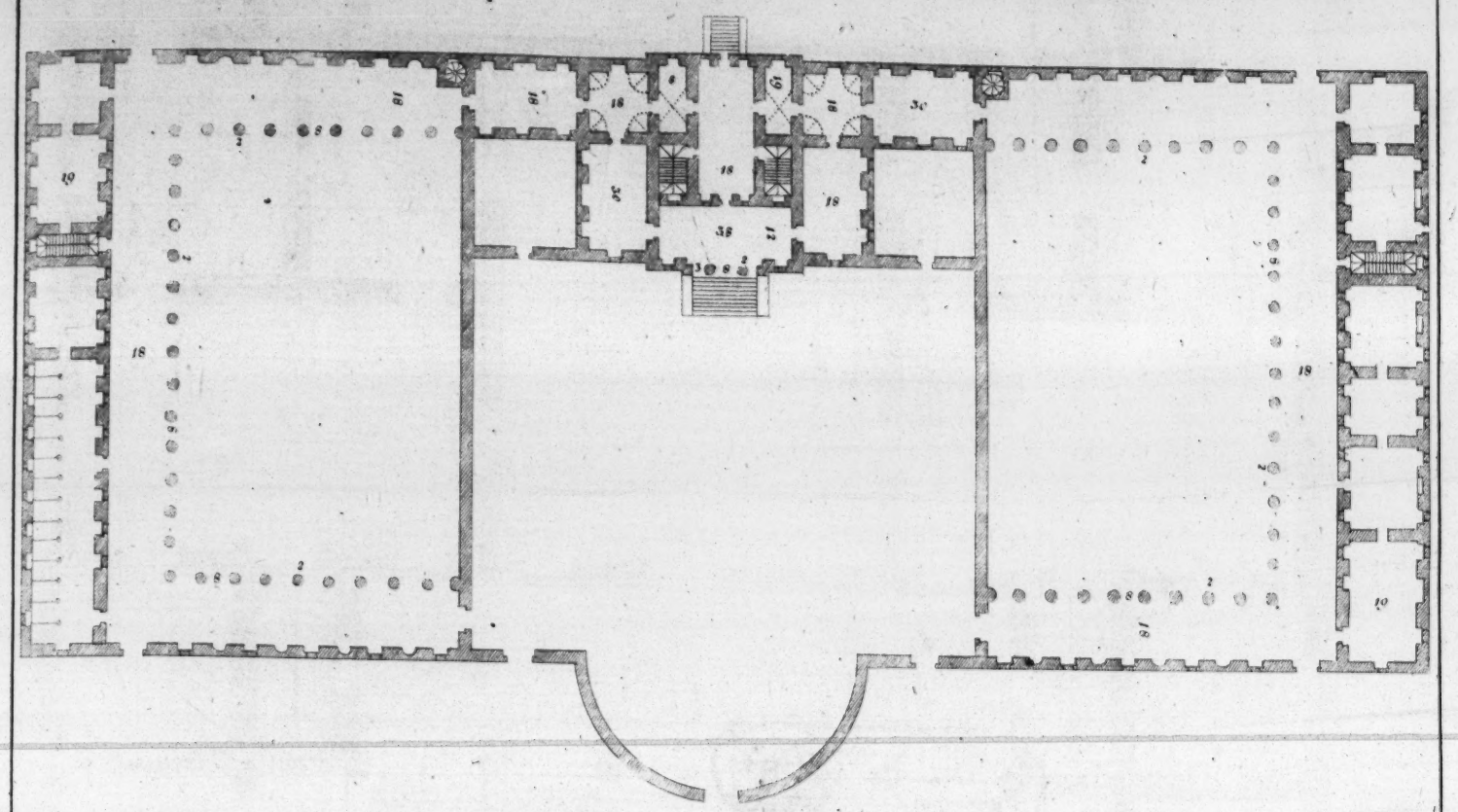
F. Ede Sculp.

BIBLIOTECA
22 OC 25
UNIVERSITARIA





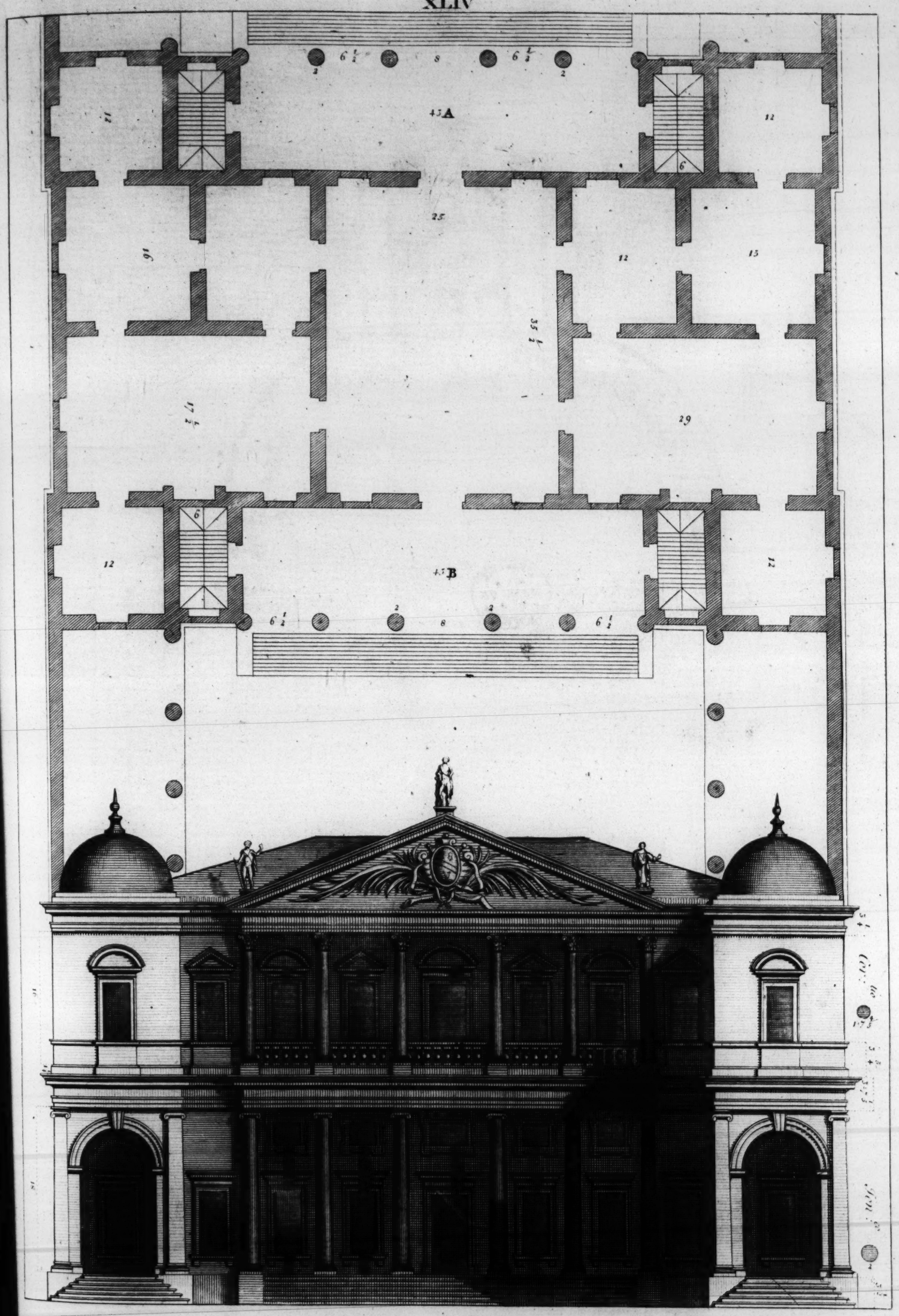
J. Harris fecit

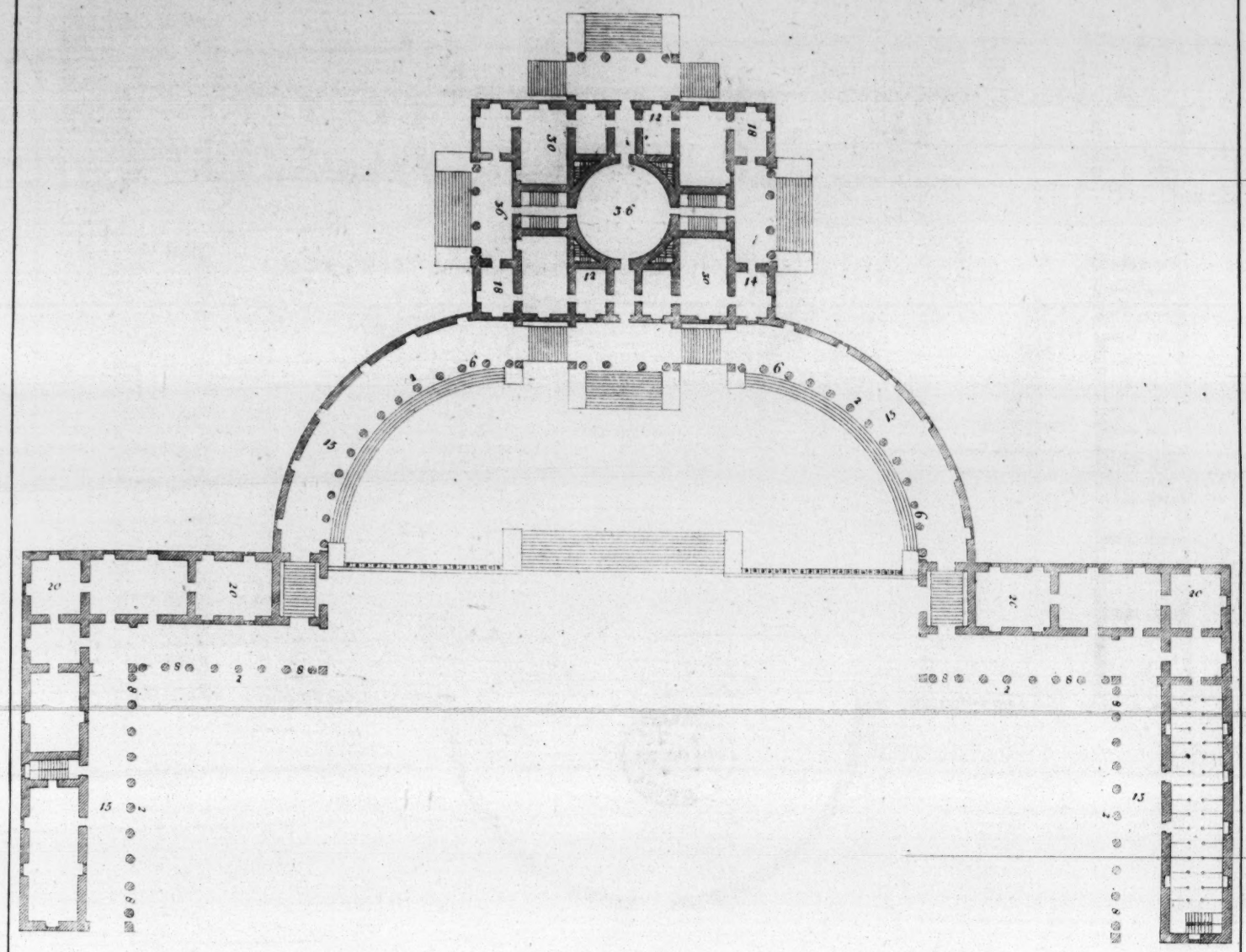


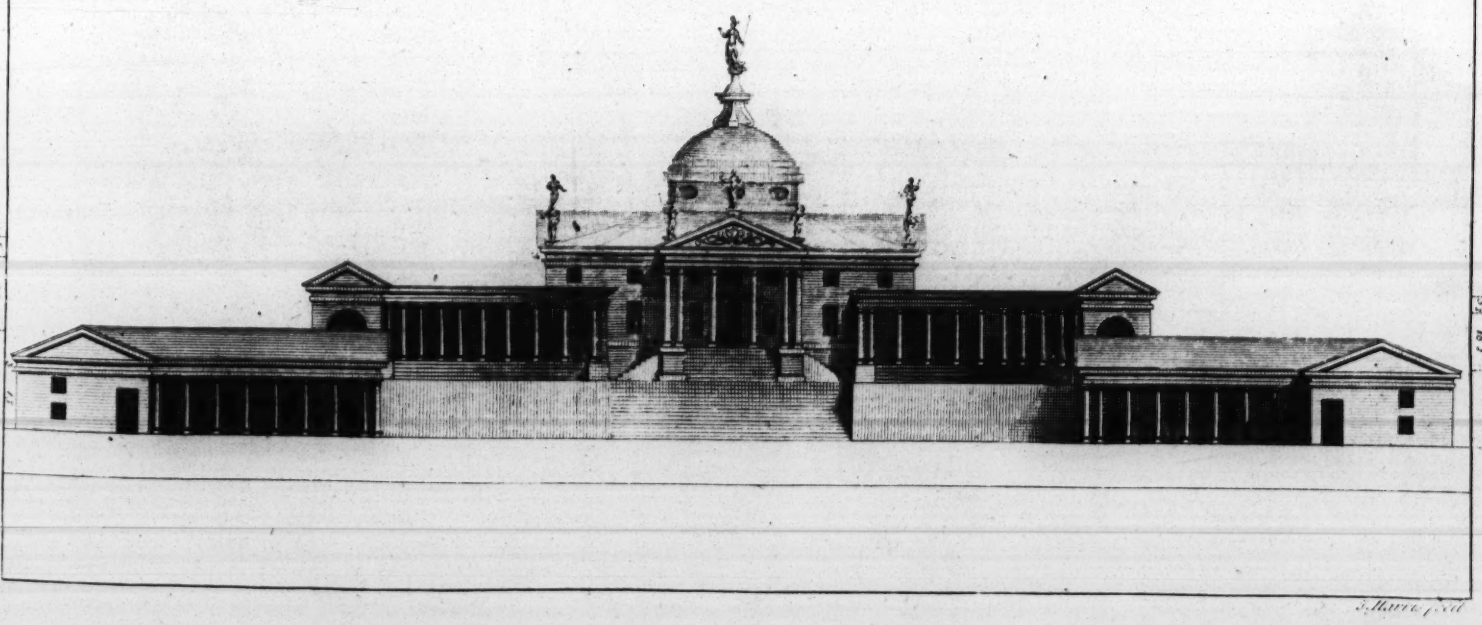
J. Cole Sculp.

Tom. 2.

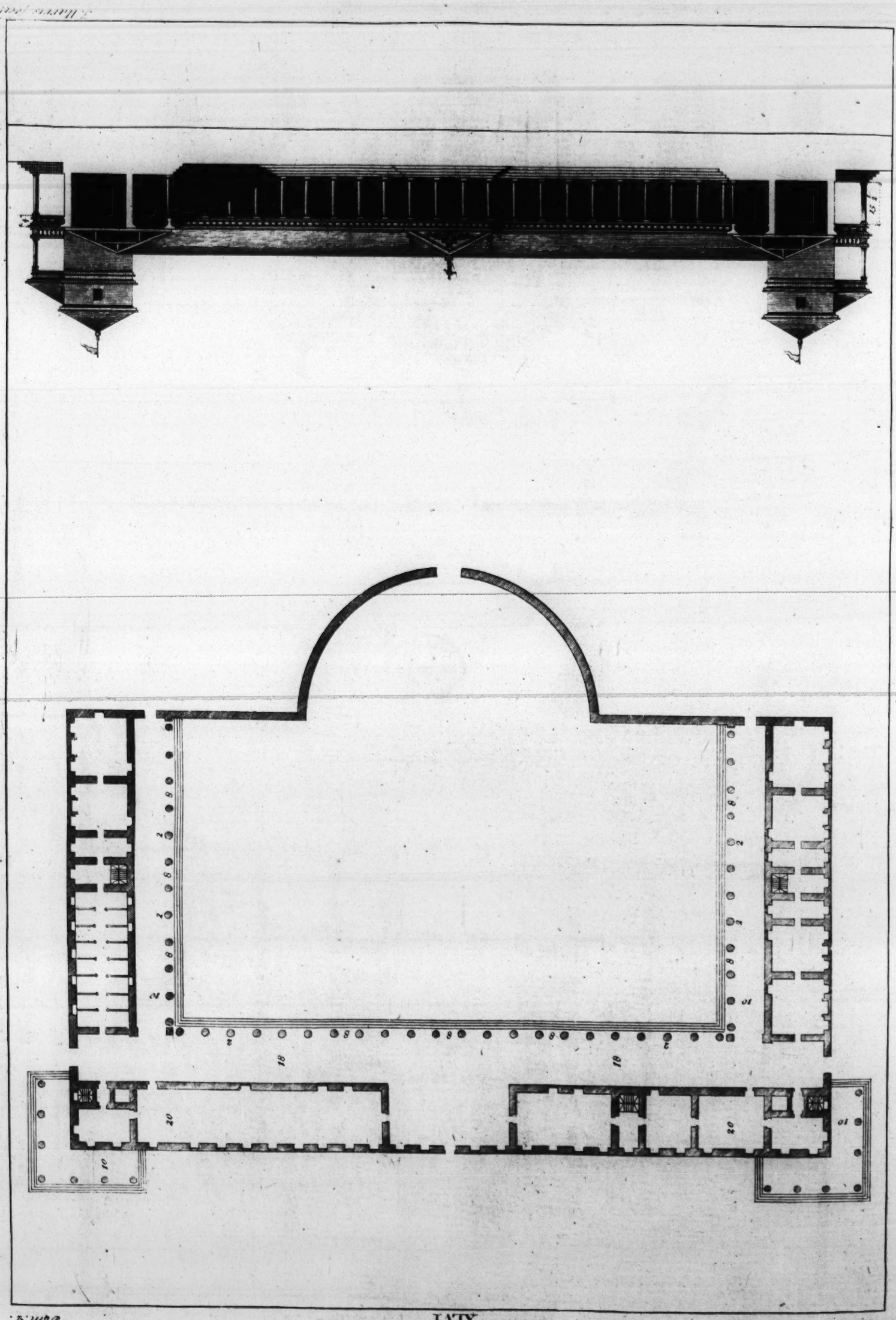
XLIV

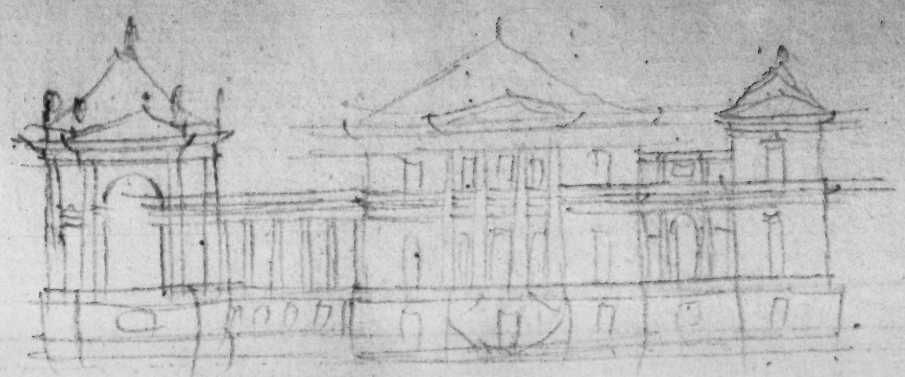


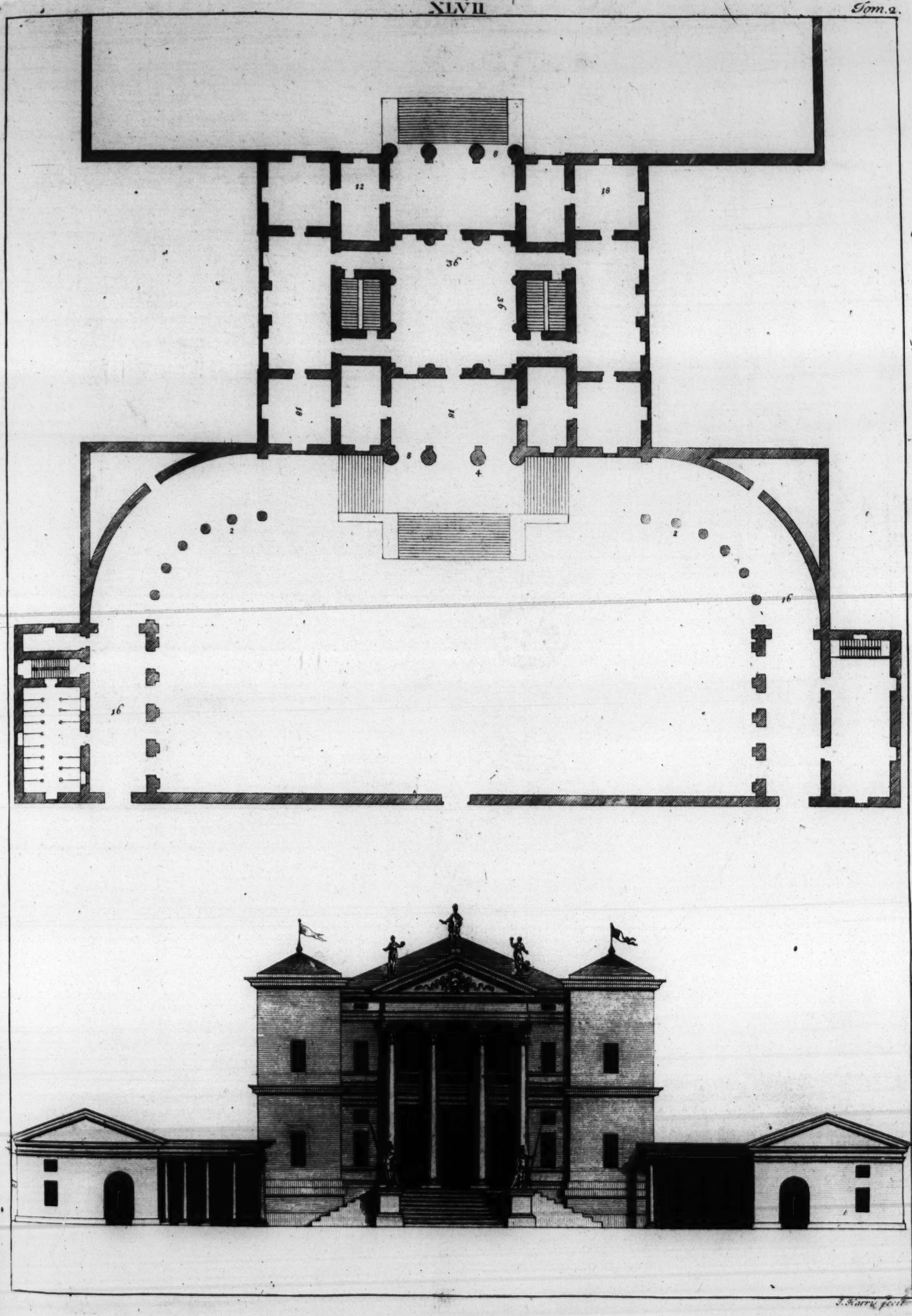




J. Rivera fecit

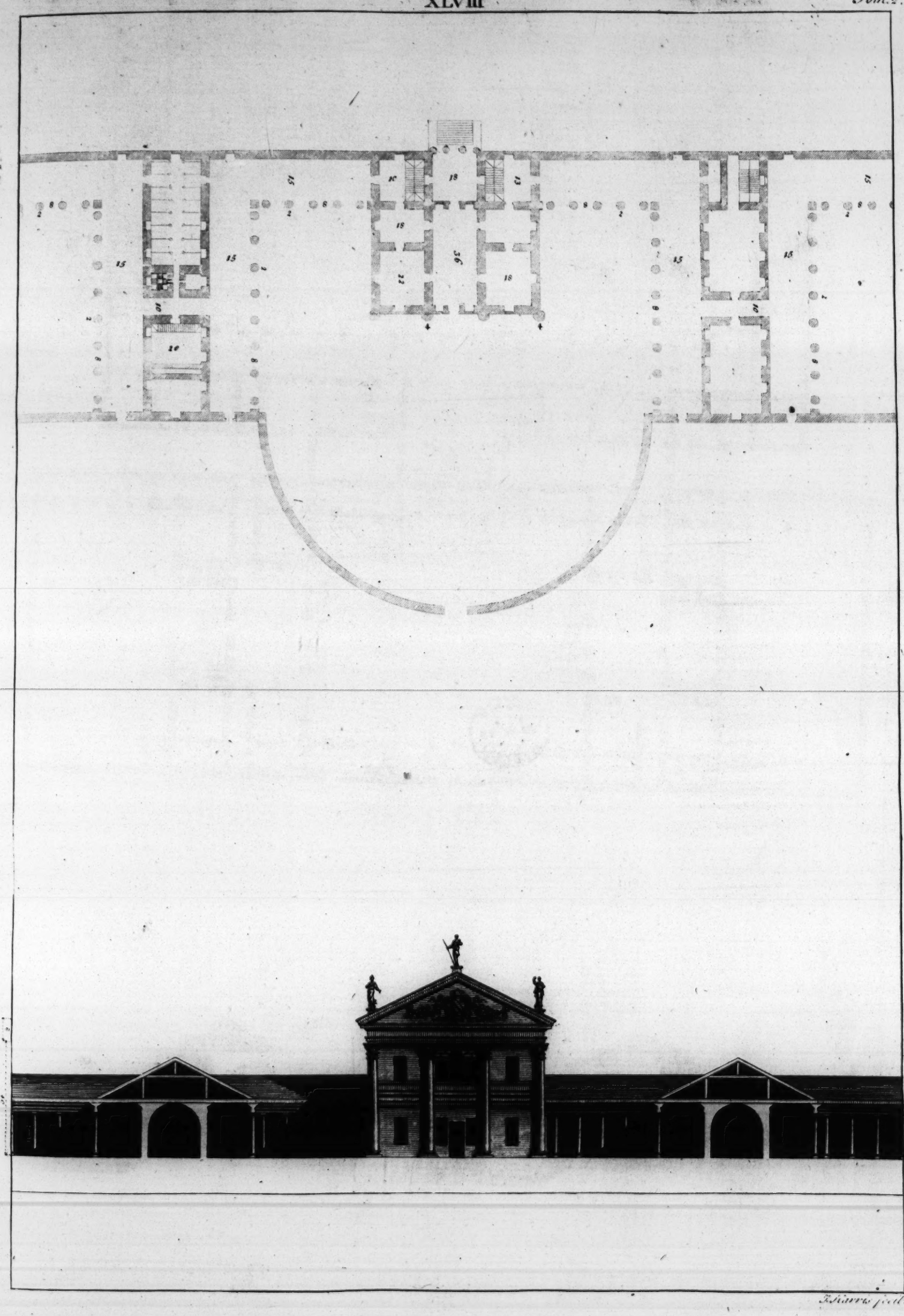




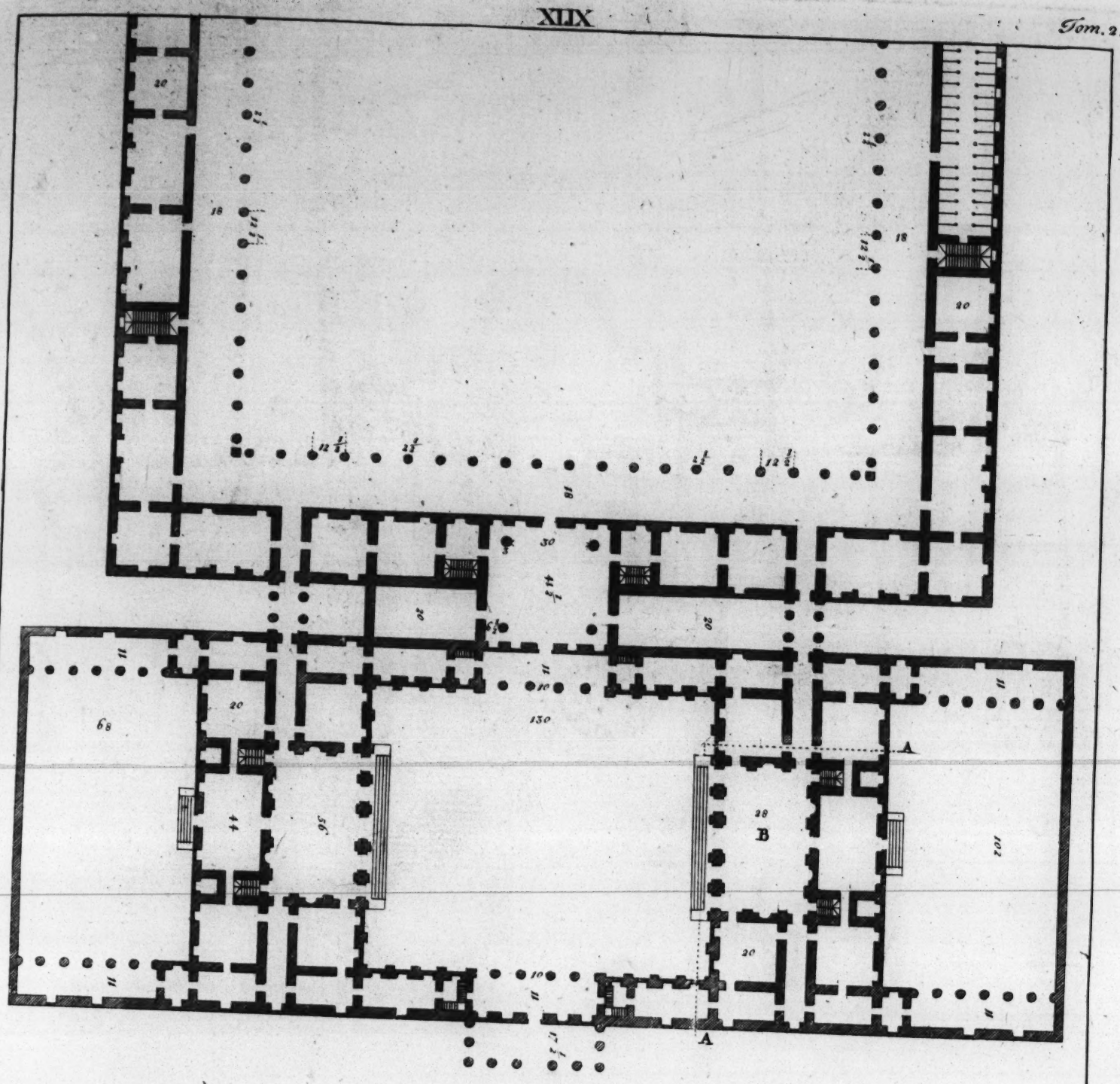


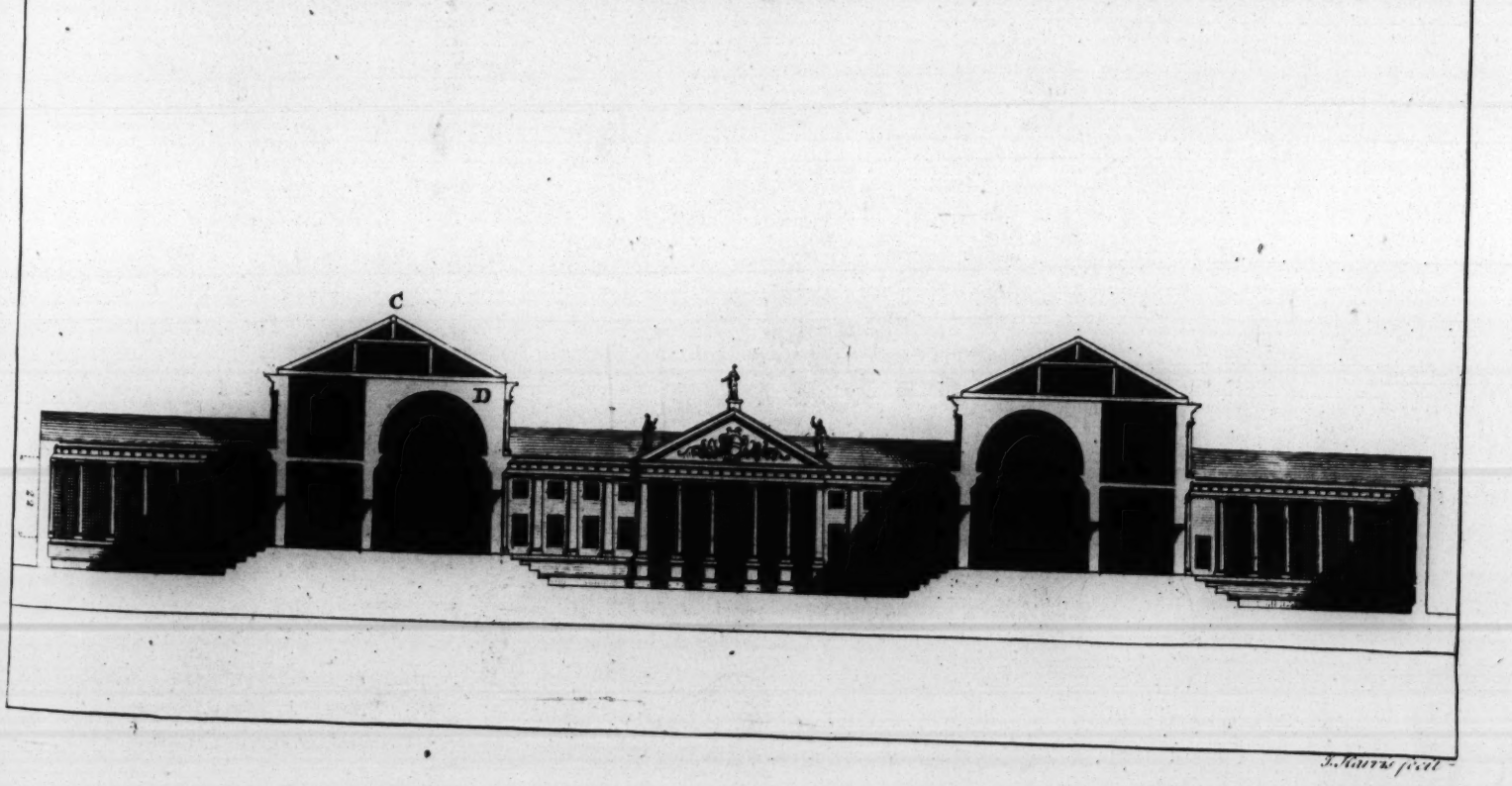
J. Harris fecit

BIBLIOTECA
24.30.25



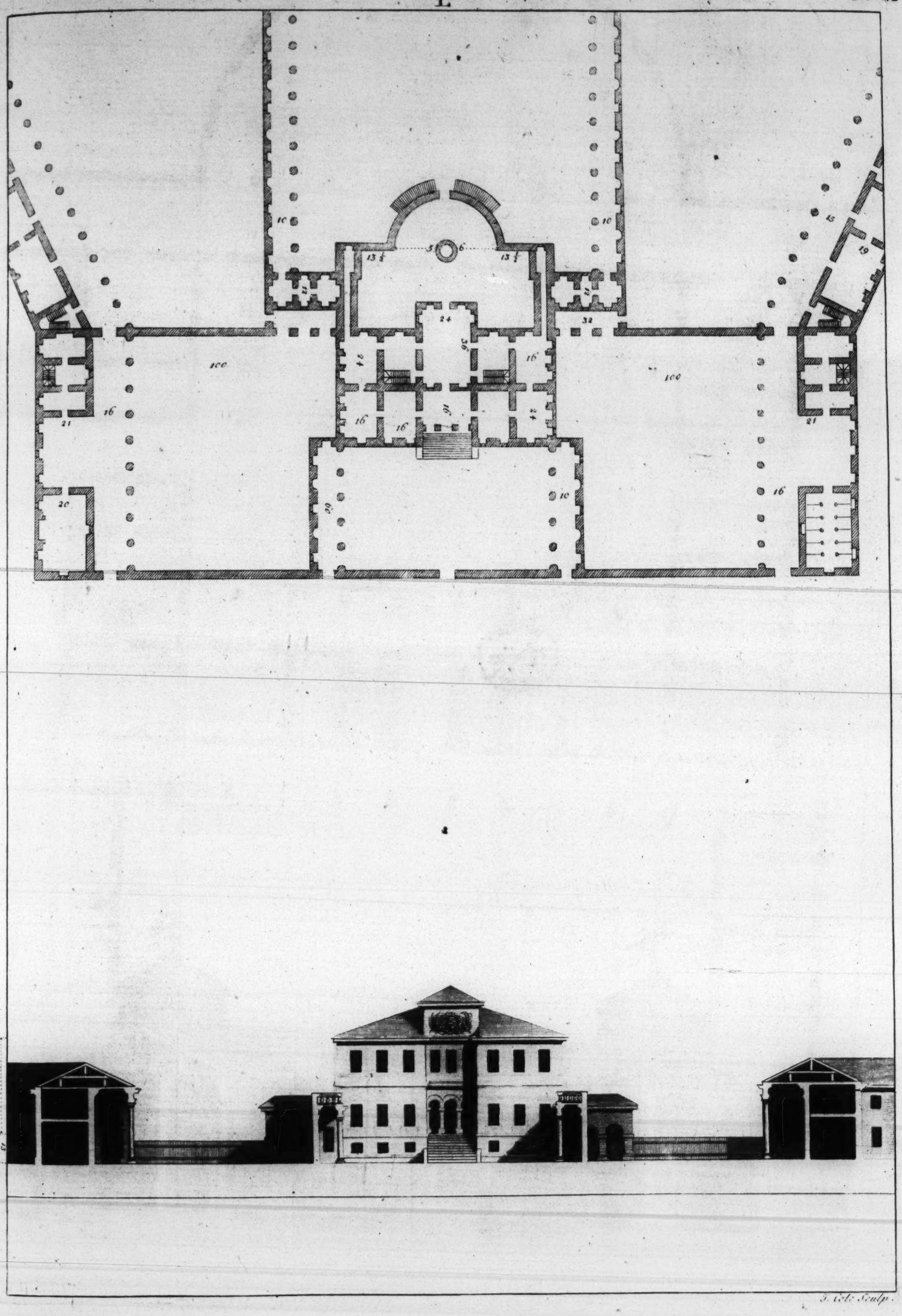
Fabbrini fecit.





J. Kurz fecit

LIBRARY
22 OF 25
ASSEMBLY


100
100
16
16
16

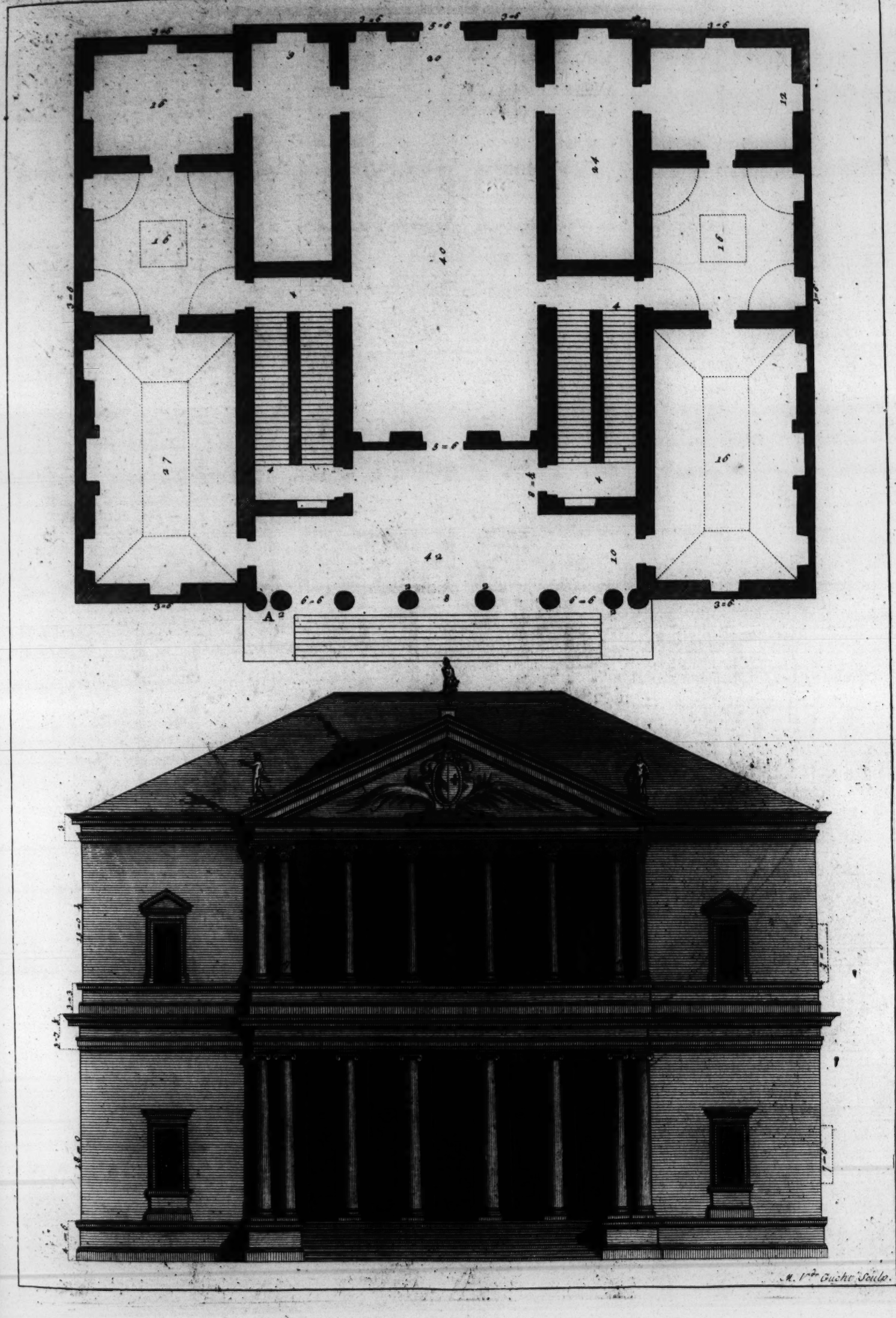
RECEIVED
23 OCT 78

Tom. 2

A

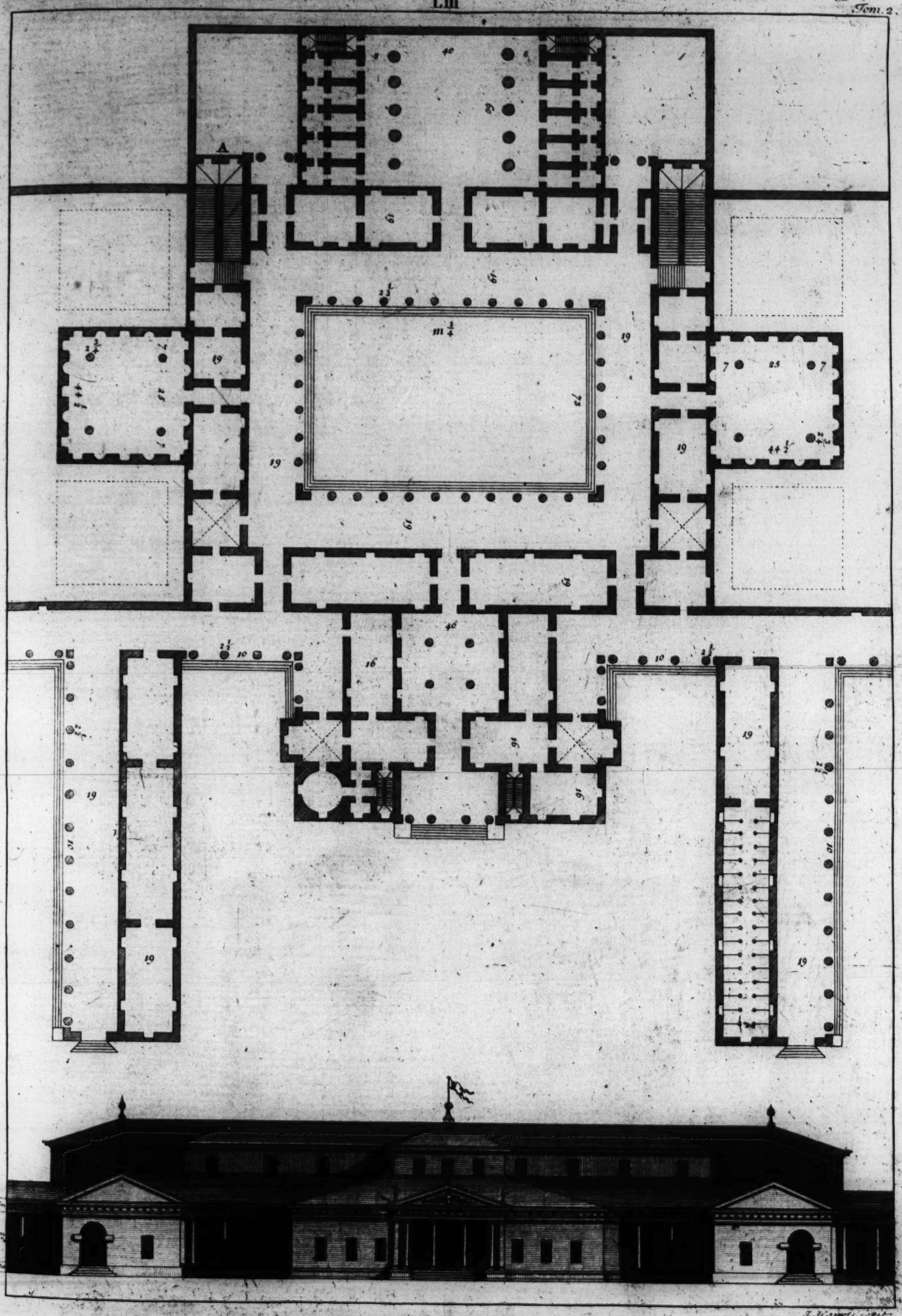
J. Barrow fecit

ARCHIVES
25 OCT 26
PARIS

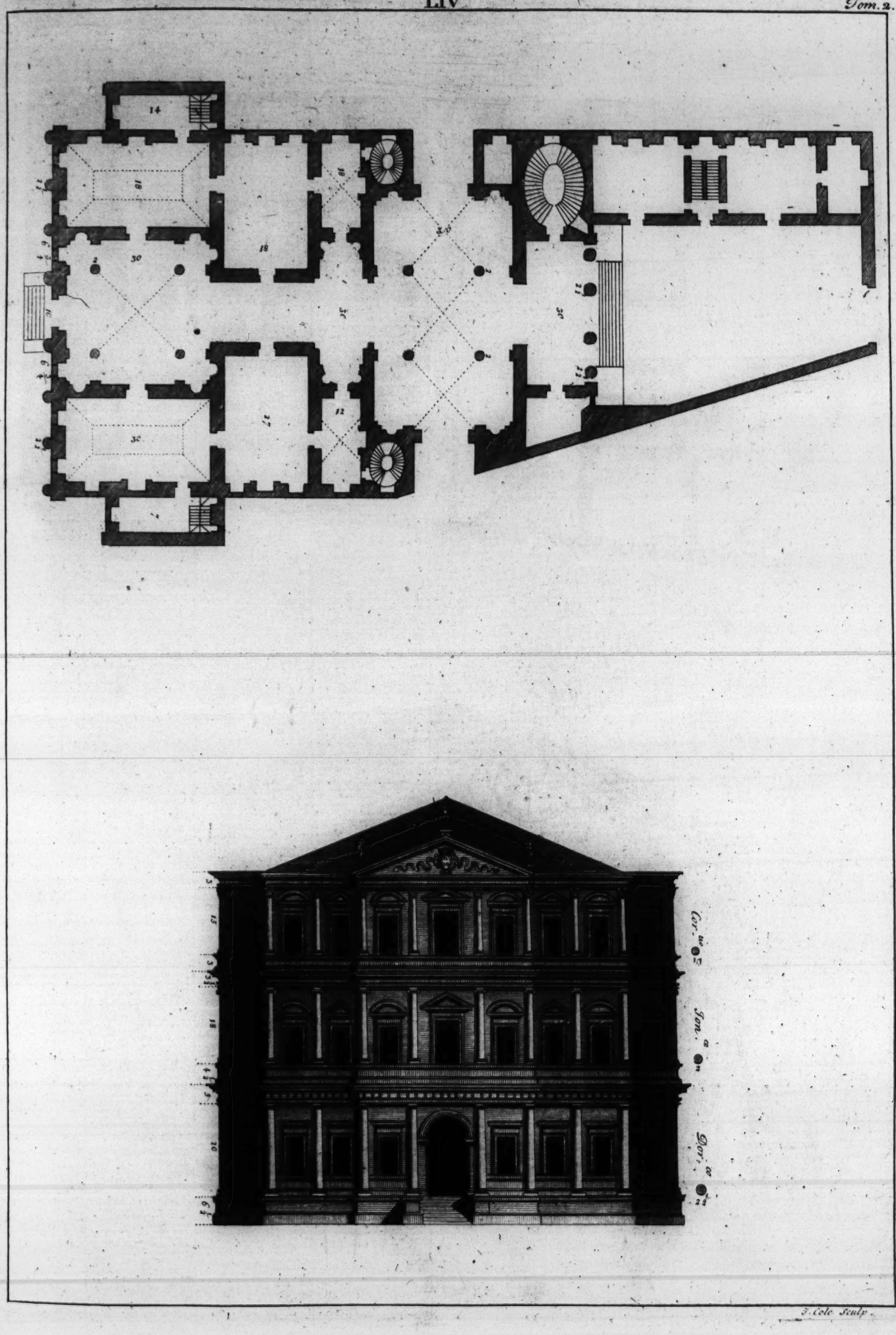


M. 1ma Octavi Scalæ.

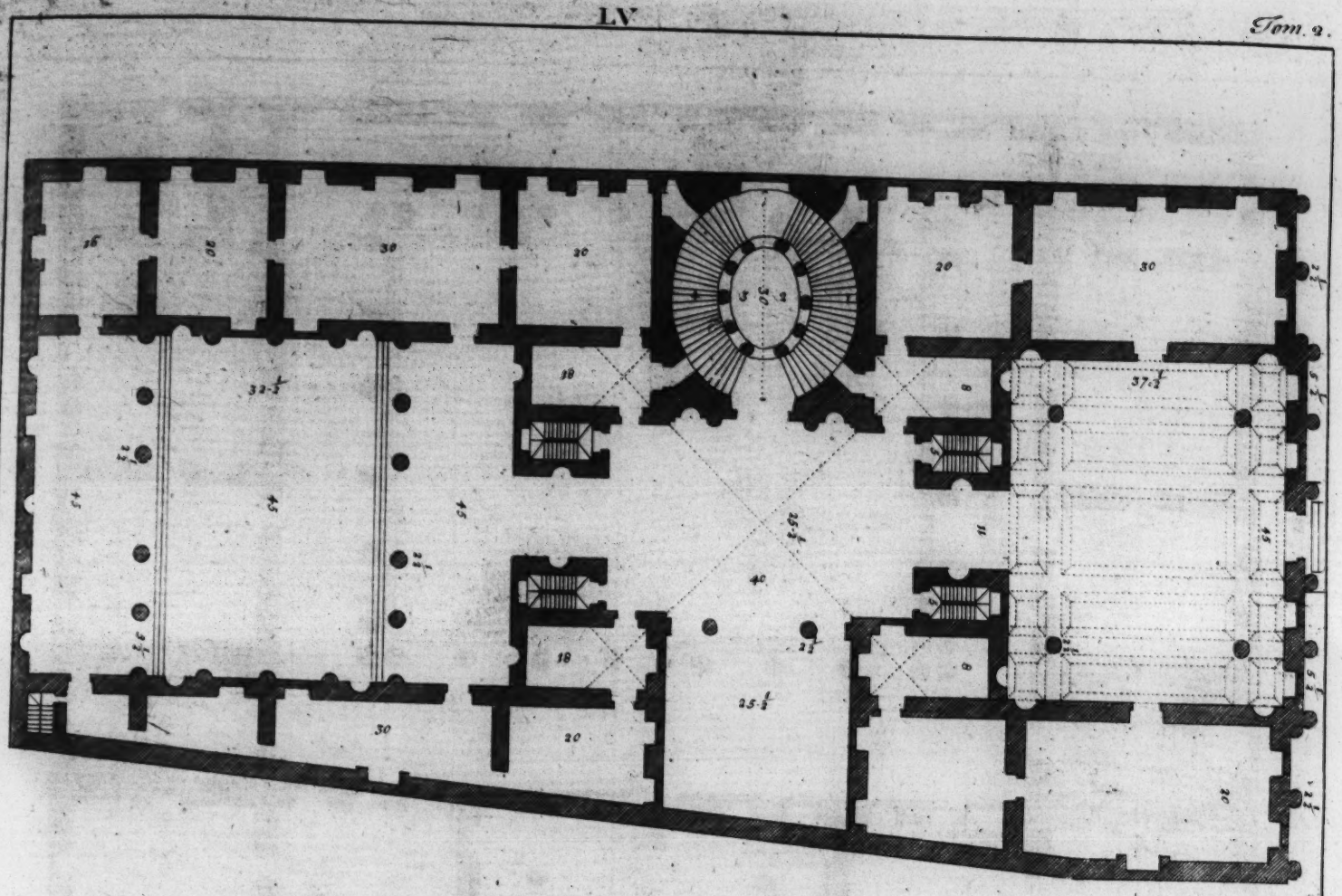
POLICE
22 DEC 22

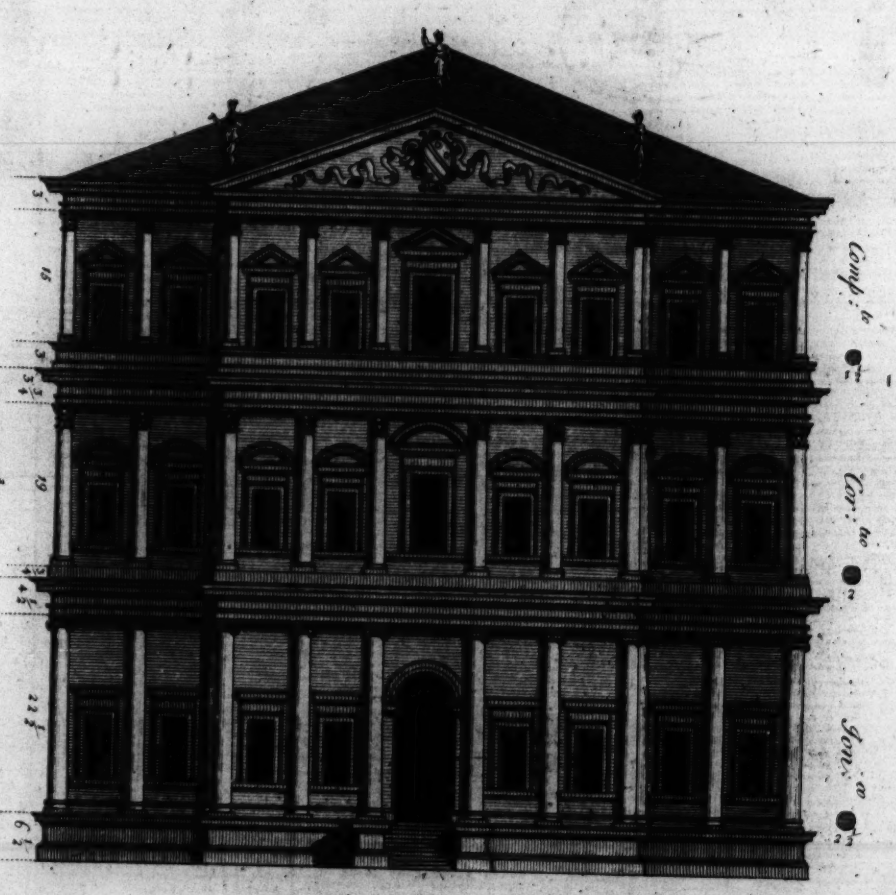

A
40
39
6
6
2½
m¼
19
73
19
19
7
25
7
44½
19
19
46
16
10
10
16
16
19
19
19

LIBRARY
OF THE
MUSEUM


14
81
18
30
35
12
Cor.ne
Ion.o
Dor.o
F. Cole Sculp.

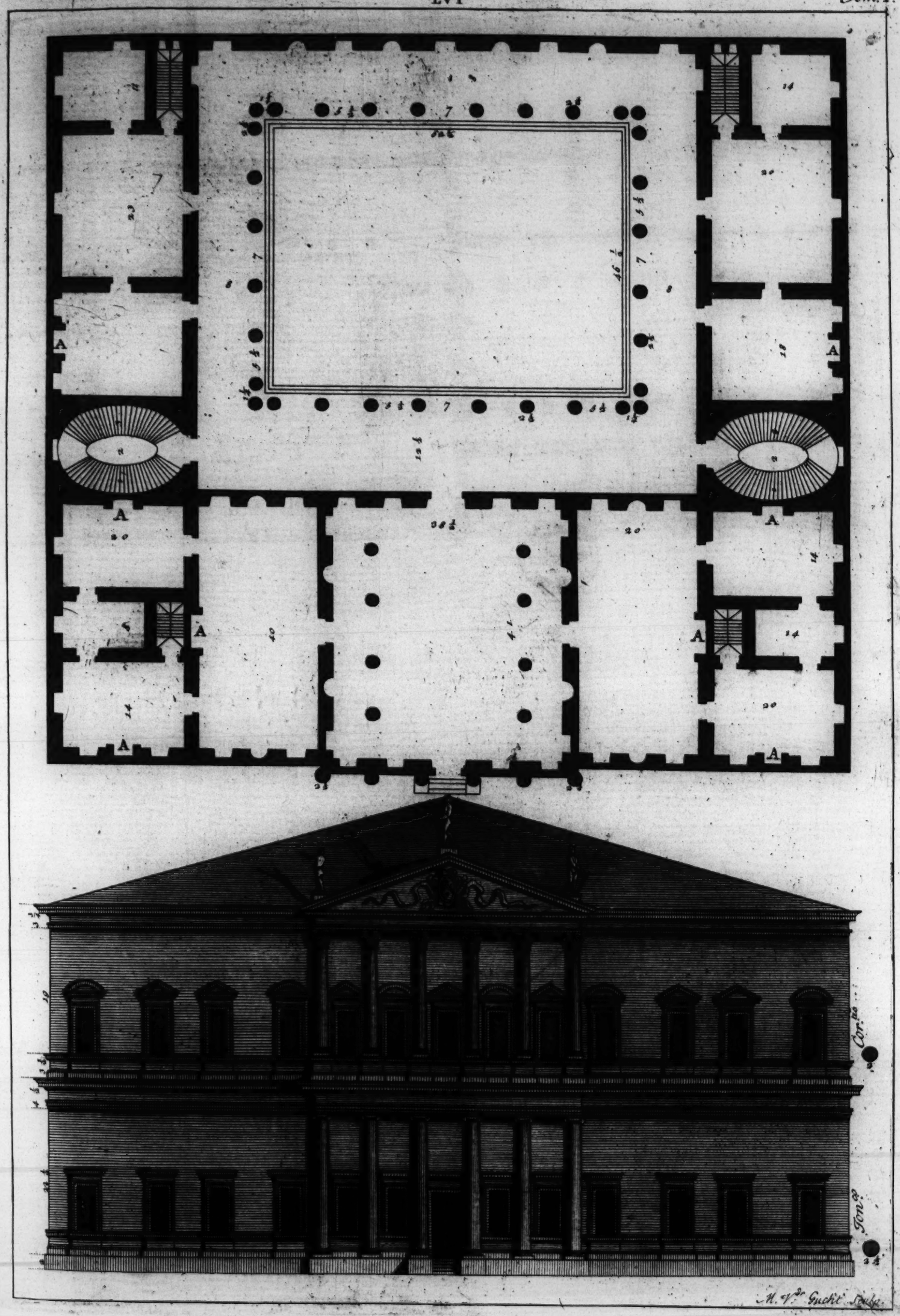
BIBLIOTECA
24 30 55



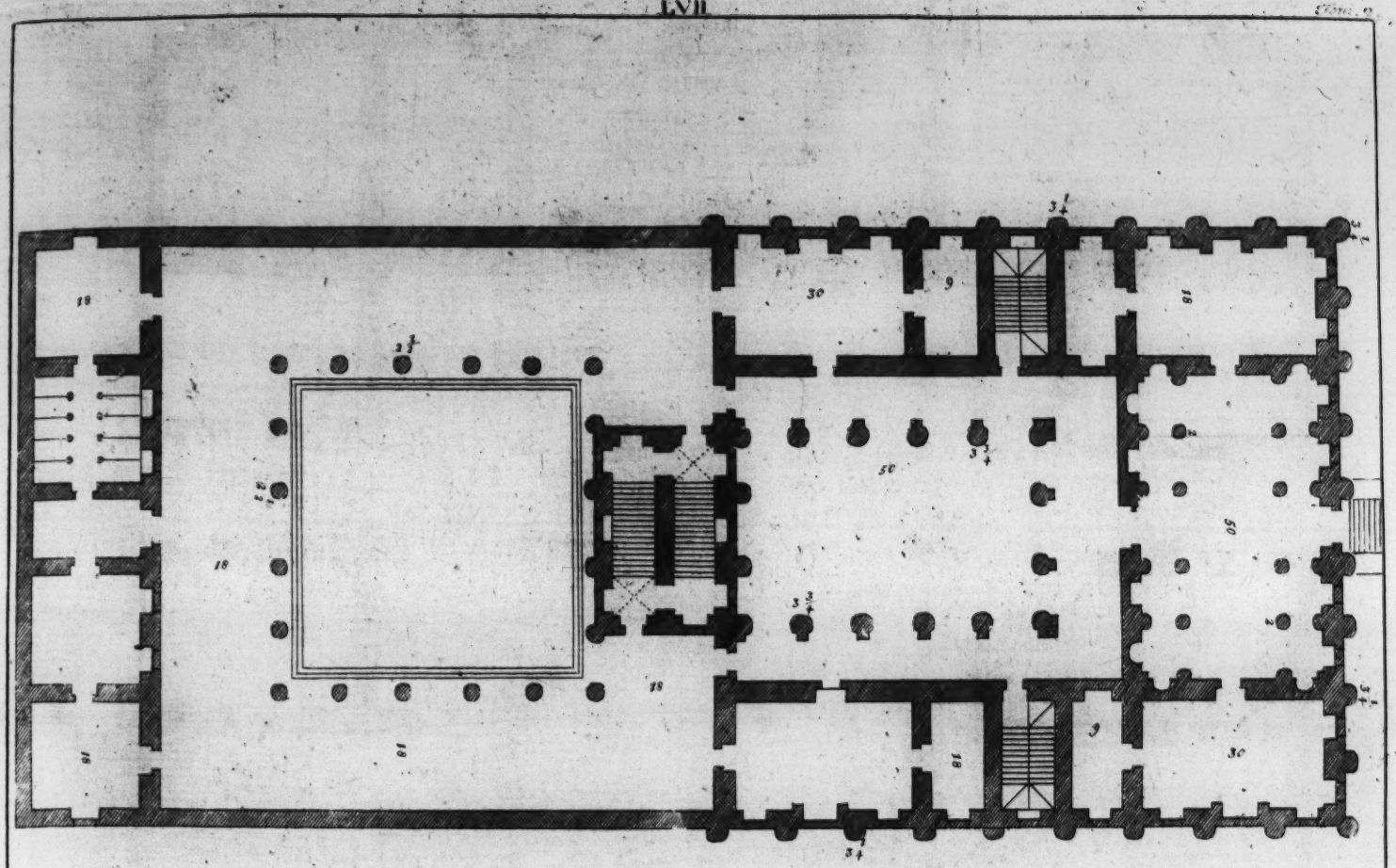


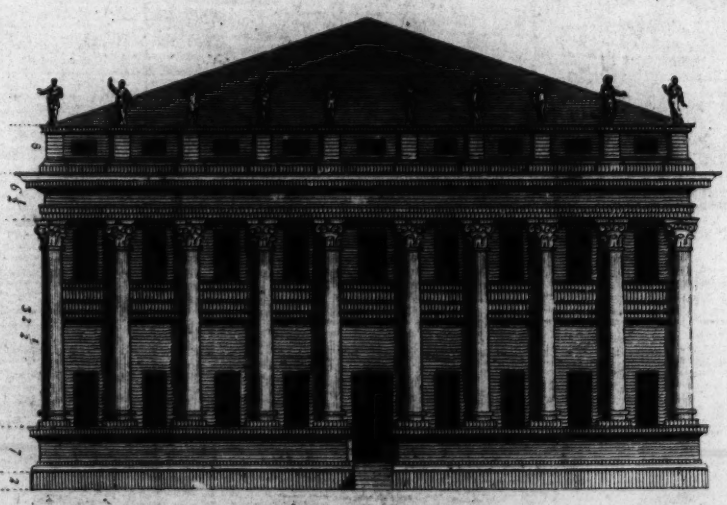
J. Cole sculp.

PUBLISHED
22 OCT '25
LIBRARY


A
A
A
A
A
A
Cor.te
Cor.te
M. V.r Guckt Sculp.

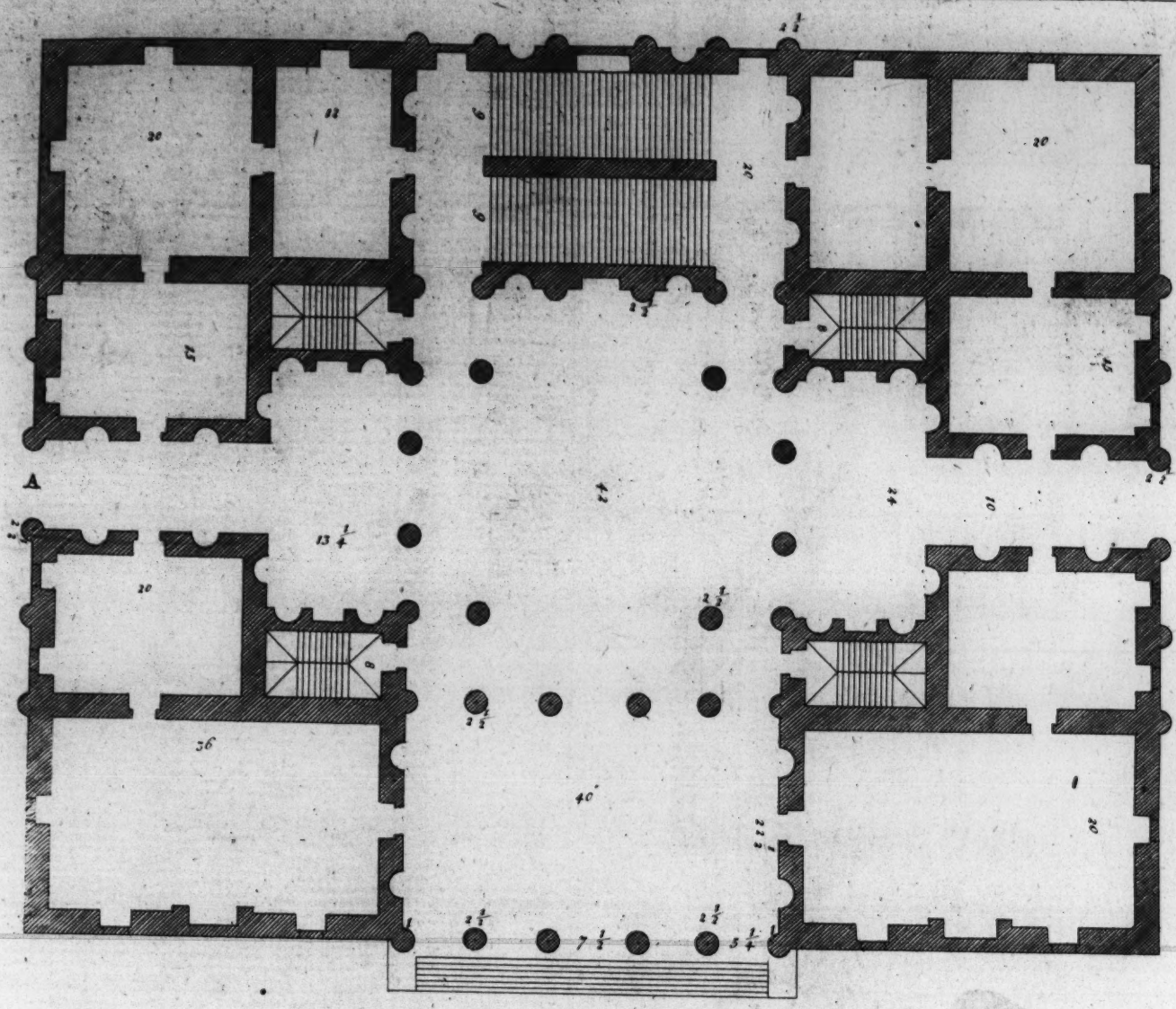
SELECTED
22 OCT 26
PATENT

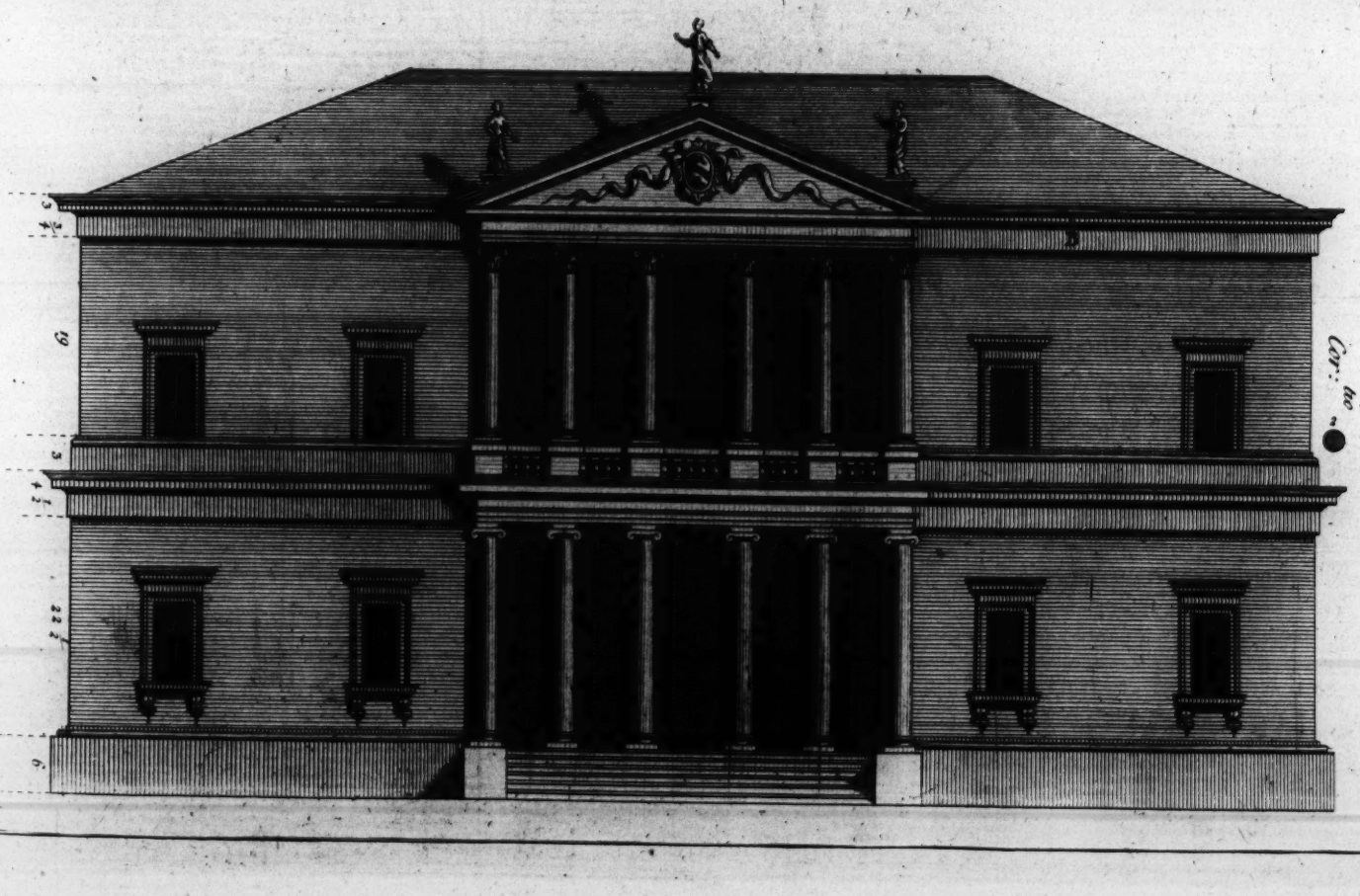




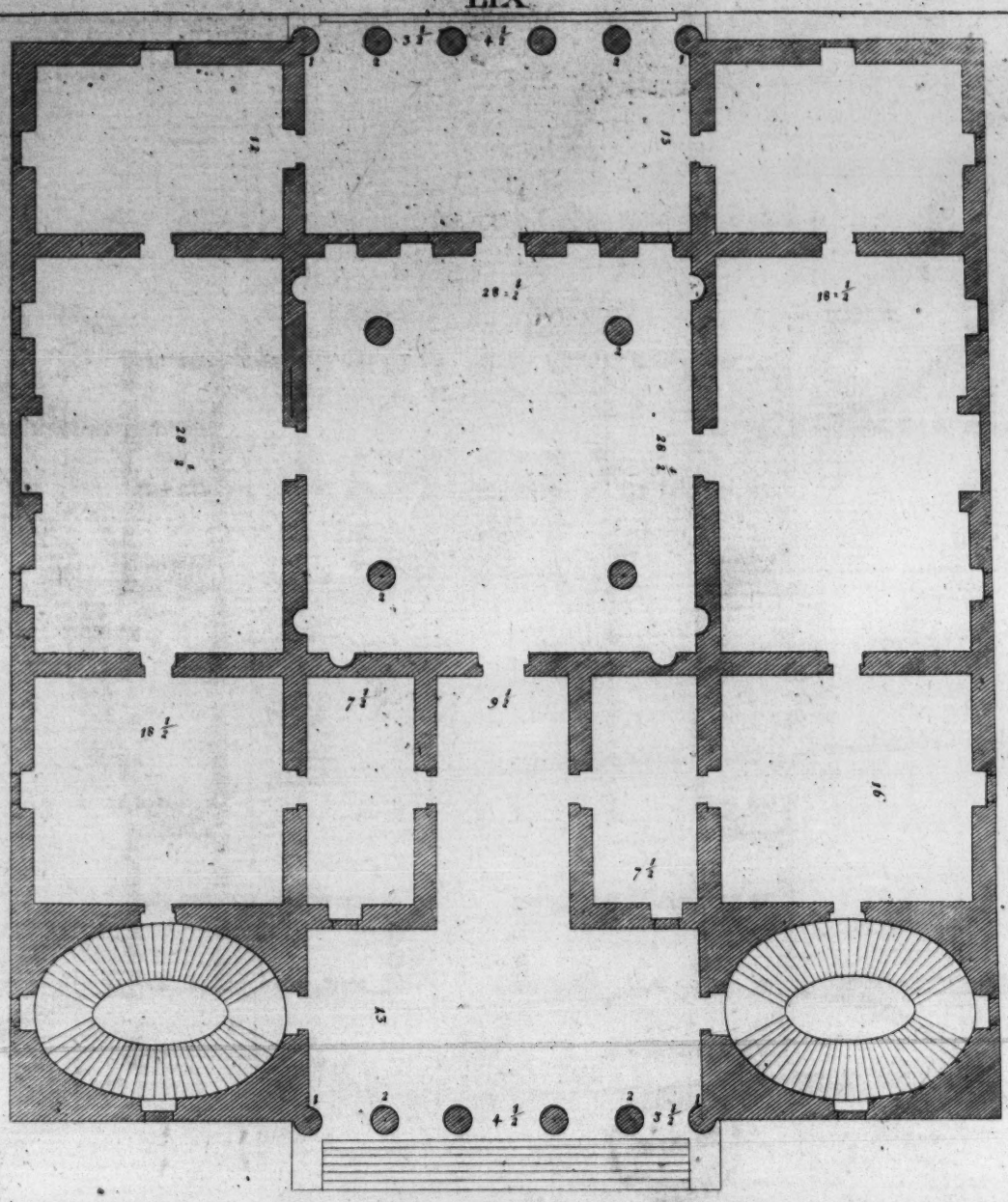
J. Cole Sculp.

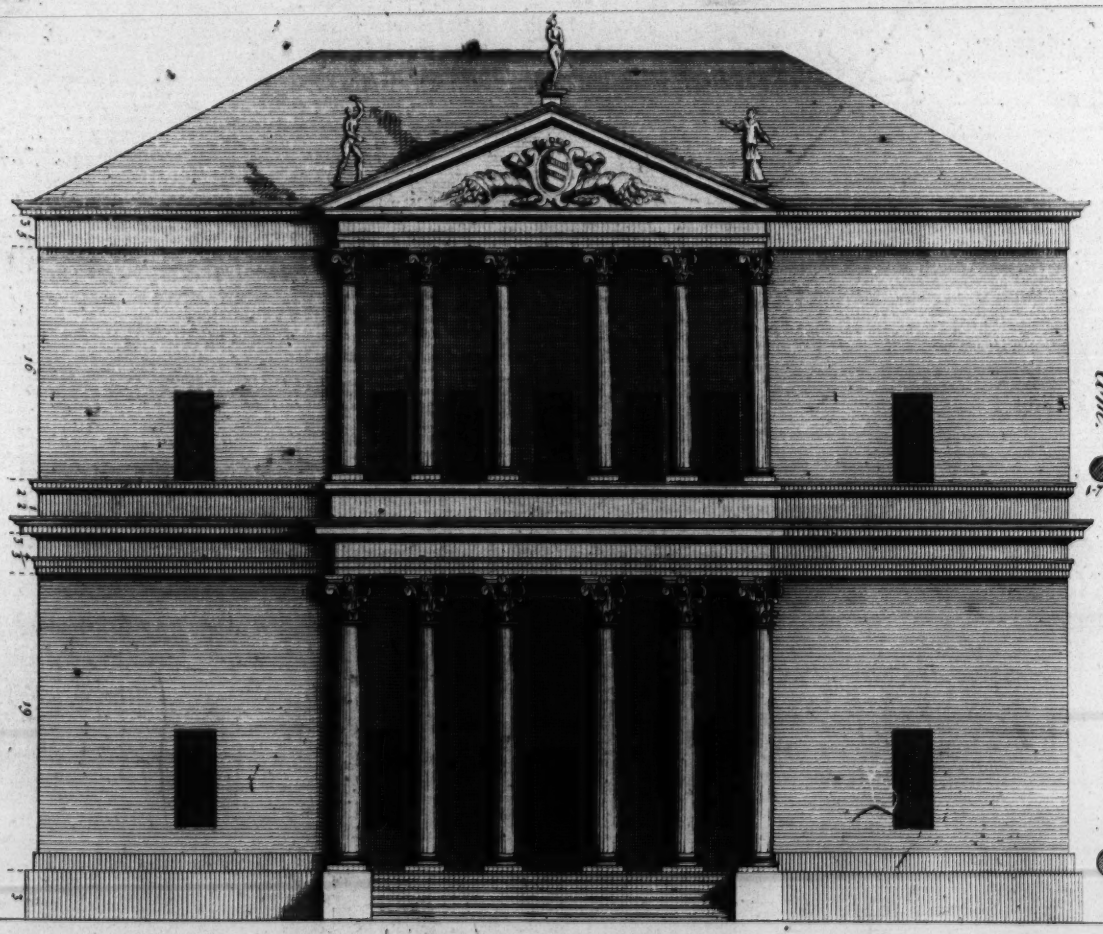
PUBLISHED
22 JUL 26
SELECTED


A
20
11
6
20
20
11
11
20
13 1/4
20
2 1/2
36
40
20
2 1/2
7 1/2
5 1/4

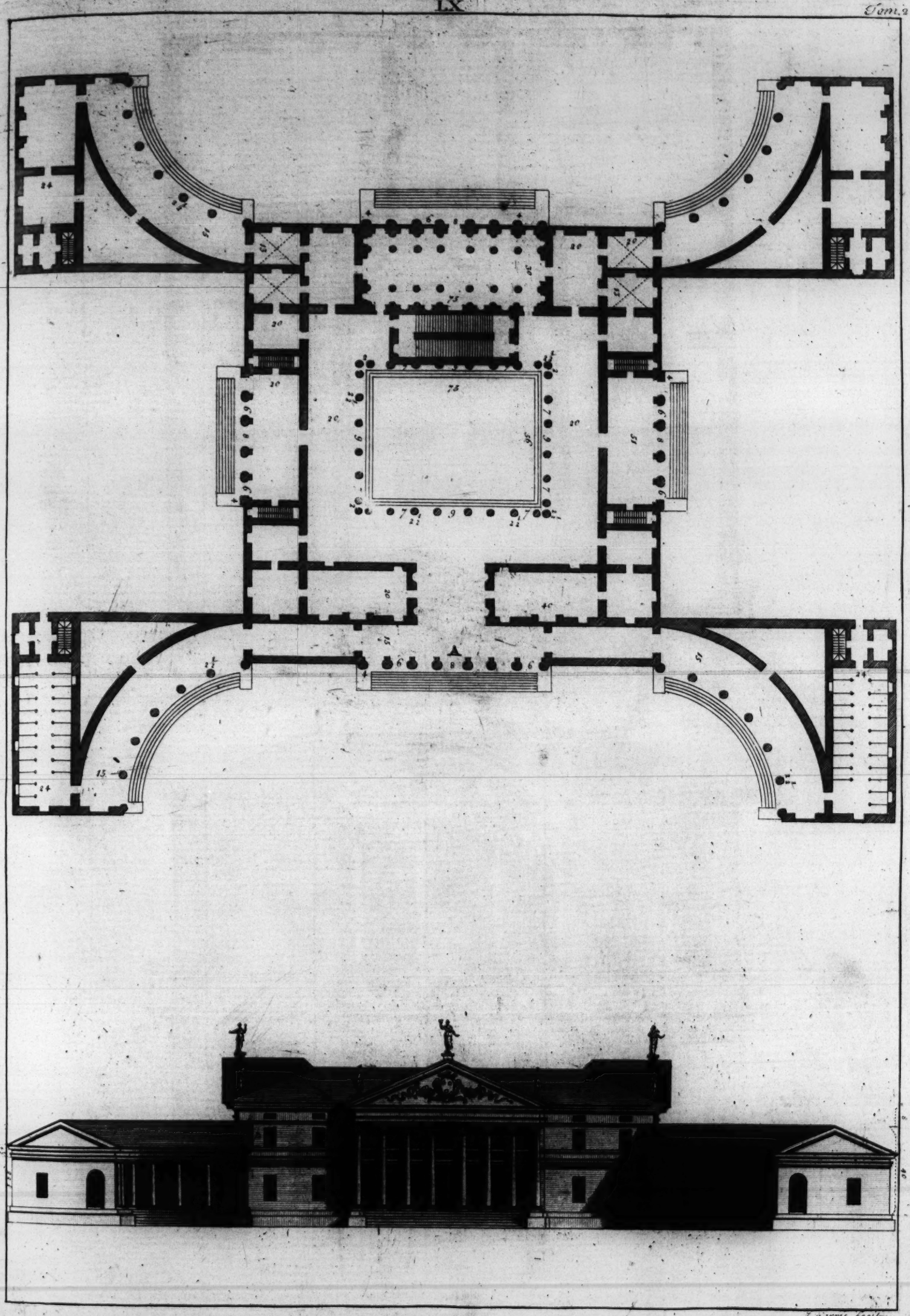

69
22 1/2
Corr. tio

BERKELEY
22 OC 25
LIBRARY

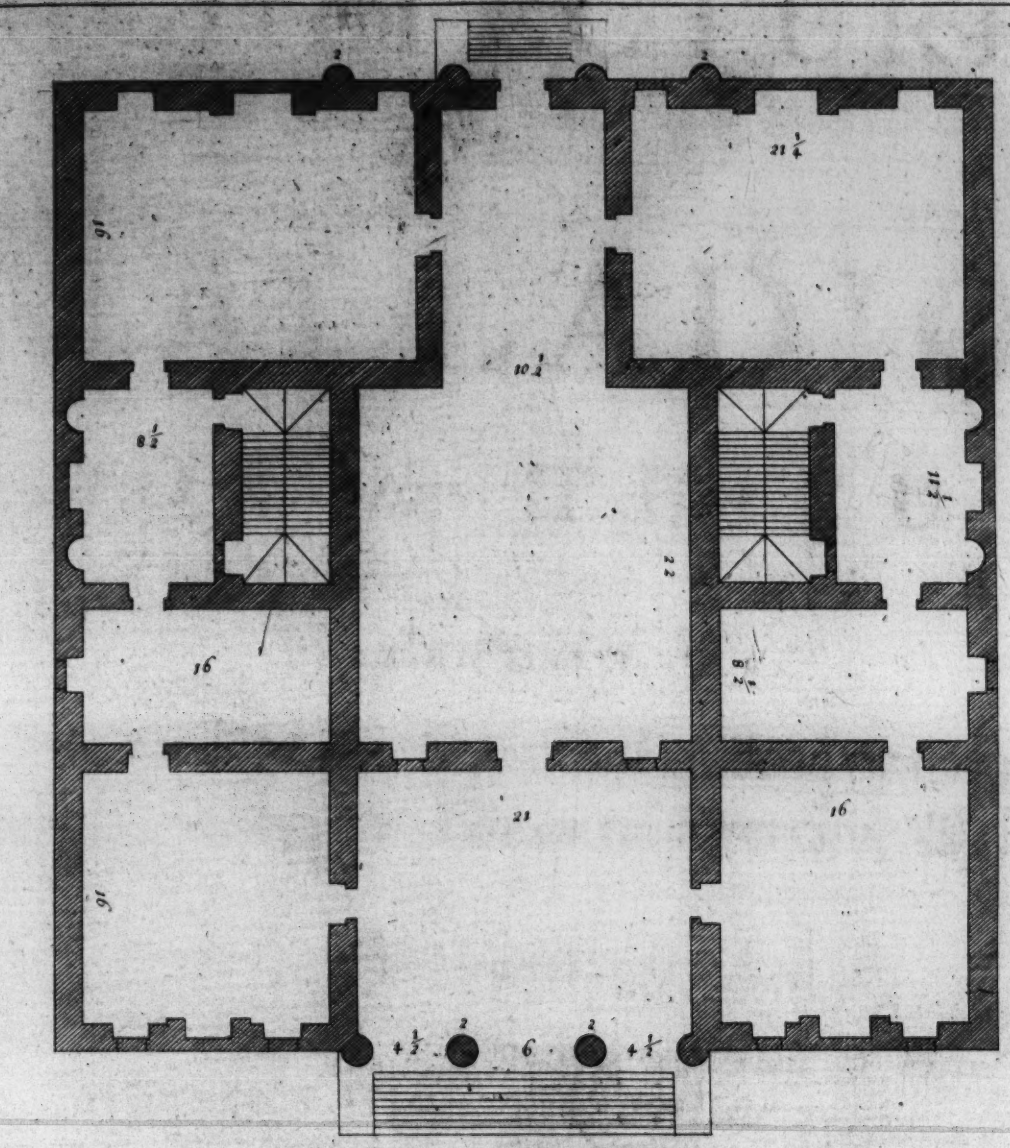


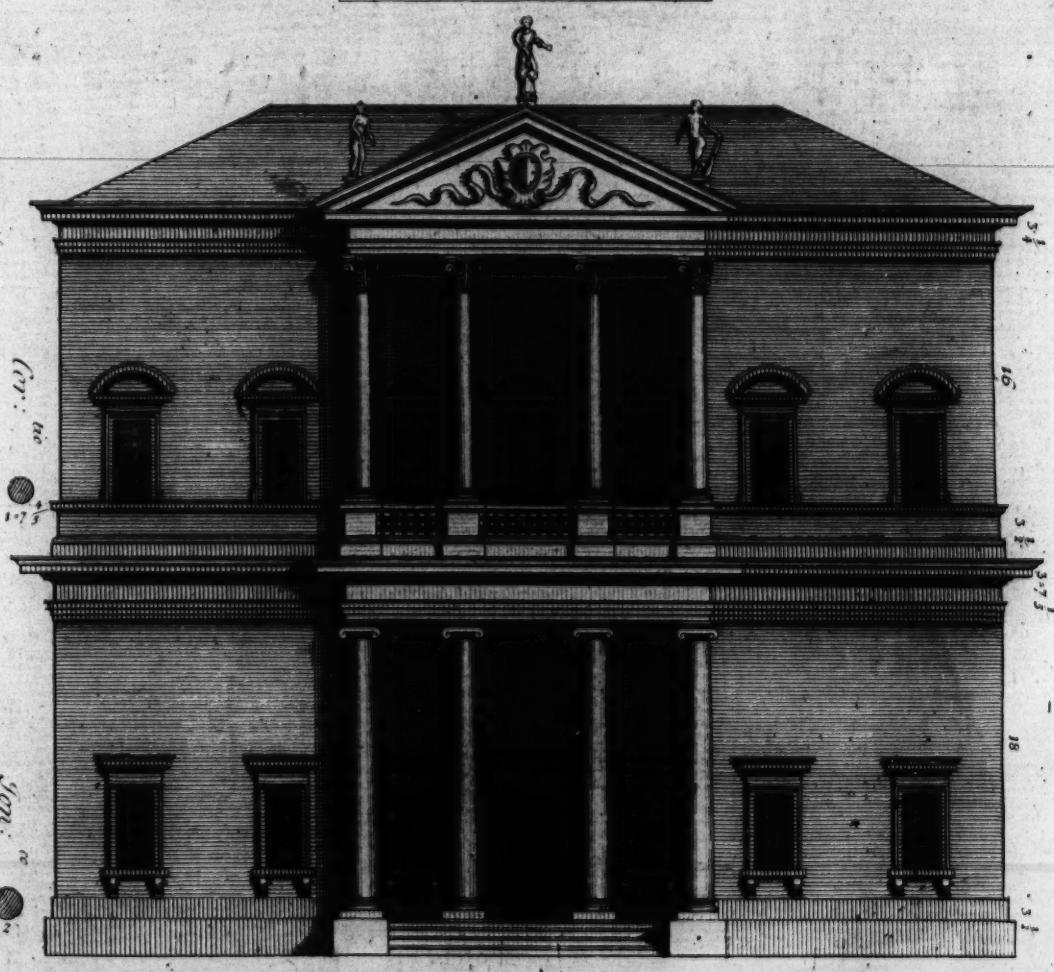


BIBLIOTECA
22 OC 25
NACIONAL



F. Aurre fecit


2
2
21 3/4
9 1/2
10 1/2
8 1/2
11 1/2
22
16
8 1/2
21
16
9 1/2
4 1/2
2
6
2
4 1/2


5 1/2
9 1/2
3 1/2
3 1/2
18
5 1/2
Fig. 1.
Fig. 2.

22 OCT 25

THE

ARCHITECTURE

OF

A. PALLADIO;

BOOK *the* THIRD.

Wherein is Treated of

Ways, Streets, Bridges, Squares, Baſilicas or Courts of Juſtice, Xiſtes or Places of Exerciſe, *&c.*

The Whole Revis'd, Deſign'd, and Publiſh'd

By GIACOMO LEONI, *a* Venetian, *Architect to His Moſt* SERENE HIGHNESS, *the Late*

ELECTOR PALATINE.

Tranſlated from the ITALIAN *Original.*

With NOTES, by *INIGO JONES.*

M. DCC. XLII.

THE

ARCHITECTURE

OF

A. PALLADIO;

IN

FOUR BOOKS.

THE PREFACE TO THE READER.

HAVING treated as fully as may be of private Buildings, (or the Houſes and other conveniencies belonging to particular Perſons) and having mention'd all the moſt neceſſary directions that ought to be obſerv'd about the ſame; having over and above this, given the deſigns of ſeveral of thoſe Houſes that have been built by my ſelf, whether within or without the City, and alſo of thoſe made by the Ancients, according as *Vitruvius* has them: 'tis highly convenient, that turning my Diſcourſe to more excellent and magnificent Fabricks, I ſhould now proceed to treat of publick Edifices; wherein (becauſe they conſiſt of larger dimenſions, and that they are beautify'd with more curious Ornaments than private ones, as ſerving for the uſe and conveniency of every body) Princes have a moſt ample field to ſhew the World the greatneſs of their Souls, and Architects are furniſh'd with the faireſt opportunity, to demonſtrate their own Abilities in excellent and ſurprizing inventions. Wherefore, as well in this Book, in which I begin my *Antiquities*, as in thoſe others, which (God willing) are to follow, it is my deſire, that by ſo much the greater application may be uſed in conſidering the little I ſhall ſay, and the deſigns I ſhall give; by how much greater fatigue and longer watchings I have been reducing thoſe Fragments that remain of ancient Buildings into ſuch a form, that I hope the lovers of Antiquity may reap pleaſure from the ſame, and the ſtudious of Architecture receive much benefit: eſpecially ſeeing that much more is learnt in a little time from good Examples, or Originals by meaſuring of them, and by ſeeing entire Edifices with all their parts deſcrib'd on a little

piece

piece of Paper; than can in a long time be learnt from words, by which the Reader becomes able only in Idea, and not without ſome difficulty, to attain to a firm and certain knowledge of what he reads, and to bring it afterwards into practice with great fatigue. Every Perſon who is not altogether depriv'd of Judgment, may very manifeſtly perceive, how excellent the manner was, which the Ancients uſed in their Buildings; ſeeing that after ſo long a ſpace of time, after ſo many deſtructions and mutations of Empires, there ſtill remain in *Italy*, and out of it, the veſtiges or ruins of ſo great a number of their ſtately Edifices, by the means whereof we come to a certain knowledge of the *Roman* virtue and greatneſs, which otherwiſe perhaps had not been believ'd. In this third Book therefore I ſhall obſerve the following method, in placing the deſigns that are contain'd in the ſame. I ſhall firſt give thoſe of Streets, High-ways, and Bridges, as being that part of Architecture which appertains to the Ornament of Cities and Provinces, and which ſerves for the general conveniency of all ſorts of Men. For, as in the other Fabricks made by the Ancients, it's eaſily diſcover'd that they ſpared no expence or labour, to bring them to that height of excellency, allow'd them, even by our imperfection: ſo they took no ſmall care in the ordering of their Ways, finiſhing them in ſuch a manner, that thereby, at this very time, may be learnt their greatneſs and magnanimity; ſince, to render them commodious and ſhort, they pierc'd Mountains, drain'd Bogs, and built Bridges, thus making thoſe Paſſages eaſy and plain, which were interrupted by uneven Vallies, or rapid Rivers. Next I ſhall treat of *Forums*, or publick places (according as *Vitruvius* teaches us that the *Greeks* and *Romans* made them) and likewiſe of thoſe Buildings which ought to be erected about ſuch ſquares: and ſince among theſe, that place is worthy of much conſideration, where the Judges adminiſter Juſtice, call'd by the Ancients a *Baſilica*, I ſhall give the particular deſigns of the ſame. But ſince it is not ſufficient that Countries and Cities be ever ſo well divided into their ſeveral diſtricts, and regulated by moſt wholeſome Laws; nor that we have Magiſtrates, who, as Executors of the Laws, keep the Citizens in obedience: if Men be not alſo render'd wiſe by the help of Learning, and ſtrong as well as healthy by the Exerciſe of their Bodies (ſo to become capable both to govern others and themſelves, and to make good defence againſt thoſe that would oppreſs them) this is the principal reaſon, why the Inhabitants of any Country, being divided at firſt into many little Can-

tons, did afterwards unite and founded Cities. And for this reaſon alſo (as *Vitruvius* relates) the ancient *Grecians* erected certain Buildings in their Cities, which they call'd *Peleſtras*, and *Xyſtes*, wherein the Philoſophers came to diſpute and diſcourſe about the Sciences, and the Youth exercis'd themſelves every day: as at certain ſet times the whole People came there together, to ſee the *Athletes* (or Fencers and Wreſtlers) play their prizes; I ſhall therefore give the deſigns of theſe Edifices, and ſo an end will be put to this third Book, which ſhall be follow'd by that of *Temples* for the exerciſe of Religion, without which no civil policy can be poſſibly maintain'd.

THE

THIRD BOOK.

CHAP. I.

Of Ways and Streets.

THE Ways ought to be ſhort, convenient, ſecure, pleaſant and beautiful. They will be ſhort and convenient, if made in a ſtrait line; and ſo large, that Carriages and Horſes be no hindrance to each other when they meet: wherefore it was provided by law among the Ancients, that where the Ways were ſtrait, they ſhould not be leſs than eight foot in breadth; nor leſs than ſixteen, when they were crooked or winding. The Ways will be further convenient, if they are made every where equal; that is to ſay, that there be no places in them where Armies may not eaſily march, and that there be no difficulty of paſſage, either from Waters, or Rivers: whence we read, that the Emperor *Trajan*, having regard to theſe two conditions (which are neceſſarily requir'd in all Ways) when he repair'd the moſt celebrated *Appian* Way, which in many places was impair'd by time, he drain'd marſhy places, levell'd Mountains, fill'd up Valleys, and making Bridges where it was neceſſary, he render'd travelling upon this Road eaſy and expeditious. The Ways will be ſecure, if made on elevated places; or if in the plain, there be, as was the manner of the Ancients, a Ditch and Banks on each ſide: and that there be no places too near, where Robbers or Enemies may conveniently hide themſelves; ſo that Strangers and Armies may, in ſuch ways preſerve themſelves from ſurprize, and readily diſcover any ambuſh that might be laid for them. Such Ways then, as have the three qualifications aforeſaid, muſt be neceſſarily fine, and very agreeable to Paſſengers; by reaſon that, in the Country, their ſtrait direction, the conveniencies they bring, with the various and diſtant proſpects they afford, muſt needs alleviate a great part of the fatigue, and fill the mind with ſatisfaction and delight, preſenting always new Landſchapes to the Eye. In the City there cannot be a more agreeable ſight, than a ſtrait, even, and large Street, having magnificent Houſes on each ſide, and built with thoſe Ornaments, which are mention'd in the preceding Books. Now, as in Towns, the Streets are beautify'd by Buildings; ſo in the Country are the Ways adorn'd by Trees, which, being planted on both ſides, delight our Minds by their verdure, and highly refreſh us with their ſhade. Of ſuch ſorts of Ways out of the City, there are many in the *Vicentine:* and among the reſt thoſe are famous which are at *Cicogna*, the *Villa* of Count *Edward Thiene*, and at *Quinto*, the *Villa* of Count *Octavio* of the ſame Family; which having been directed by me, were afterwards beautify'd and adorn'd by the diligence and induſtry of the ſaid Gentlemen. The Ways made in this manner afford numberleſs Conveniencies, becauſe that by reaſon of their being ſtrait, and ſomewhat higher than the reſt of the ground (always ſpeaking of thoſe in the Country) the Enemy may be diſcover'd afar off, as I ſaid before, in time of War, whereby a Commander is at liberty to

take the reſolution he thinks moſt fitting: beſides that at other times great profit ariſes from their ſhortneſs and eaſineſs, by reaſon of the Buſineſs and Traffick that is carry'd on by them. But becauſe all Ways are either within or without the City, I ſhall firſt particularize the qualifications requiſite in thoſe within the City, and next how thoſe ſhould be made that are without. Yet ſeeing that military Ways are one thing, and non-military another, the firſt being ſuch as paſs through the midſt of the City, that lead from one City to another, that ſerve for the common uſe of all Paſſengers, for Carriages to drive, or Armies to march; and the ſecond being ſuch as iſſue out of the other, or are made for the uſe and conveniency of ſome particular *Villa*: I ſhall in the following Chapters treat of the military Ways only, quite omitting the non-military, becauſe theſe ought to be regulated according to thoſe; and that the more like to them they are, the more commendable they will be.

CHAP. II.

Of the Compartment of the Ways (or Streets) within the City.

IN the compartment, or diſtribution of the ways in a City, or Town, regard muſt be ever had to the temperament of the Air, and alſo to the region of Heaven, or the climate under which the place is ſituated: becauſe where the Air is cold or temperate, there the Streets ought to be made large and noble, ſince thereby the City will become more wholeſome, convenient, and beautiful: it being certain, that by how much leſs piercing, and withal by how much freer the Air is, by ſo much the leſs will it offend the head; and therefore by how much more a Town is ſituated in a cold place, or in a piercing Air, and that the Houſes are high, by ſo much the larger ought the Streets to be made, that they may be viſited by the Sun in every part of them. As for what concerns conveniency, ſince there is more room in large than in narrow Streets, for Men, Cattle, and Carriages, there is no doubt but thoſe are much more convenient than theſe: and it being likewiſe manifeſt, that broad Streets are more lightſome, and that therefore the one ſide of ſuch a Street is leſs eclips'd by the oppoſite ſide, the beautifulneſs of Temples and Palaces muſt needs be ſeen to greater advantage in the large than in the narrow Streets, whence greater pleaſure ariſes in the mind, and greater Ornament accrues to the City. But if the Town is ſituated in a hot climate, the Streets ought to be made narrow, and the Houſes built high; that by the ſhade and ſtraitneſs of the paſſage, the heat of the Air may be temper'd, and conſequently that it may become more healthy: as this is well known by the example of *Rome*, which, as we read in *Cornelius Tacitus*, grew more hot and leſs healthy, after *Nero*, in order to make it more beautiful, had enlarg'd its Streets. In this caſe however, for the greater ornament and conveniency of the City, the Street that is fulleſt of the principal Trades, and the moſt frequented by Strangers, ought to be made large, and adorn'd with magnificent and ſumptuous Buildings; becauſe the Strangers that paſs thro' it will readily conclude, that the other Streets of the City bear a proportion to the largeneſs and beauty of this. The principal Streets, which we have named *military*, ought to be ſo comparted, as to be ſtrait, and to lead in a direct line from the Gates to the chief place or

ſquare

ſquare of the City; and likewiſe, if the ſituation will permit it, ſometimes from one Gate directly to the Gate on the oppoſite ſide: nor ought it to be forgotten, that according to the compaſs of the City, there ſhould in the ſame Street, and on the ſame line, or in any other ſuch Street, and leading from which of the Gates you pleaſe, be made one, or more ſuch ſquares, ſomewhat leſs than the principal one. The other Streets of the City, at leaſt the fineſt of them, ought not only to lead to the principal Square, or open place; but alſo to the remarkable Temples, Palaces, Porticos, and other publick Fabricks. But the greateſt care muſt be taken in this compartment of the Streets, that (as *Vitruvius* teaches in the ſixth Chapter of his firſt Book) they do not directly face any of the principal winds, that theſe may not blow violently or furiouſly into the ſame, but that they may come broken, gentle, purified, and ſpent; leſt you fall into the ſame inconvenience with thoſe, who of old in the Iſle of *Lesbos* comparted the Streets of *Metelinum*, from which City the whole Iſland has taken its name. The Ways, or Streets, of a Town muſt be always paved; and we read that in the Conſulſhip of *Emilius* they begun to pave the Streets of *Rome*, whereof ſome are ſeen at this day, and which are all even, conſiſting of Stones unequal in their bigneſs and angles: which ſort of paving, how it was performed, we ſhall teach lower in this Book. But if you would divide the place for the paſſage of Men, from that for the uſe of Carriages and Beaſts, 'tis my opinion that *Porticos* ſhould be made on each ſide of the Street, under the cover of which the Citizens may go about their affairs, without being annoy'd by the Sun, the Rain, or the Snow; and in this manner are almoſt all the Streets of *Padua*, a very ancient City, famous for its Univerſity. Or if *Porticos* be not made, in which caſe the Streets will be more large and pleaſant, a border muſt be paved on each ſide with broad Stones, or ſquare Tyles, which are a ſort of Bricks larger than *Quadrels*, or common ones; and the reaſon is, that in walking they never offend the feet: ſo that the middle of the Street will be left for Carriages and Beaſts, and may be paved with Flint, or any other hard Stone. There muſt be a Kennel in the middle of the Street, towards which each ſide is gently to incline, that the Rain-water which falls off the Houſes may run all into one Channel, and have a free and eaſy courſe: whence the Streets will be left clean, and no bad Air be produced; as it happens, when ſuch Waters gather into one place, and ſtagnate or putrify there.

CHAP III.

Of the Ways, or Roads, without the City.

THE Ways without the City ought to be made large, commodious on both ſides, and planted with Trees, by whoſe ſhade the Paſſengers are ſhelter'd from the heat of the Sun in Summer, as their Eyes will be agreeably refreſh'd by their verdure. The Ancients laid out great care and labour on ſuch Ways: and therefore, that they might always continue in good repair, they created Prefects, Overſeers, or Curators of the ſame. They made a great many of thoſe Ways, which, altho' ſpoilt by time, yet ſtill preſerve in ſome places the memory of their beauty and conveniency. But among the moſt famous are the *Flaminian* and *Appian* Ways. The firſt was made by the Conſul *Flaminius*, after his victory over

over the *Ligurians* (or *Genoeſe.*) It begun at the Gate *Flamentana* (at this day call'd *Porto del popolo*) and paſſing thro' *Tuſcany* and *Umbria*, it led to *Ariminum*; from which City it was afterwards by *Marcus Lepidus* his Collegue continu'd to *Bononia* (now *Bologna*) and near the foot of the *Alps*, winding round the Marſhes, it ended at *Aquileia.* The *Appian* Way took its name from *Appius Claudius*, by whom it was made with great labour and expence; whence, by reaſon of its magnificence, and the wonderful art that was laid out upon it, it was call'd *the Queen of Roads.* This Way took its beginning from the *Coliſeo* (or *Pompey*'s Amphitheatre) and leading thro' the *Porta-capena* (a Gate of *Rome* ſo called) it extended quite to *Brunduſium.* It was carry'd only to *Capua* by *Appius:* nor is it certain who was the Author of it beyond, tho' by ſome it is thought to be *Cæſar*, becauſe *Plutarch* ſays, that the care of this Way being committed to *Cæſar*, he laid out upon it a great ſum of Money. It was laſt of all repair'd by the Emperor *Trajan*, who, as I ſaid above, by draining of Marſhes, levelling of Mountains, filling up of Valleys, and making Bridges where it was neceſſary, reſtor'd it to be both expeditious and moſt agreeable to Paſſengers. The *Aurelian* Way is likewiſe highly celebrated, ſo called from *Aurelius* a Citizen of *Rome*, who made it. It begun at the *Aurelian* Gate, now called the Gate of St. *Pancrace*; and extending it ſelf along the maritime places of *Tuſcany*, it ended at *Piſa.* Of no leſs renown were the *Numentan*, the *Preneſtin*, and the *Labican* Ways. The firſt begun from the Gate *Viminalis*, now call'd the Gate of St. *Agnes*, and extended to the City of *Numentum:* The ſecond begun at the Gate *Eſquilina*, now call'd that of St. *Lawrence*; the third from the Gate *Nevia* (which is now the *Porta-maggiore*) and both theſe ways led to the City of *Preneſte*, call'd at this day *Pelleſtrino*, and to the famous City of *Labicana.* There were a great many other Ways which are mention'd and celebrated by Authors, as the *Via Salaria*, the *Collatina*, the *Latina*, and others, every one of which took its name either from the Perſon that made it, or from the Gate where it begun, or from the place where it ended. But for conveniency and beauty they muſt have been all far ſurpaſt by the *Portuenſian* Way, which reach'd from *Rome* to *Oſtia*; becauſe, as *Alberti* affirms to have obſerv'd, it was divided into two Ways, between each of which there was a courſe of Stones higher by a foot than the reſt of the Way, and which ſerv'd for a diviſion: ſo that People went by one of theſe Ways, and return'd by the other, thus avoiding all hindrance or joſtling of each other; and it was indeed a very convenient invention, conſidering the prodigious concourſe of People that was then at *Rome* from all parts of the World. The Ancients made thoſe military Roads after two manner of ways; that is, either by paving them with Stones, or covering them all over with Gravel and Sand. The Ways of the firſt ſort (as far as by ſome remains of them we have been able to conjecture) were divided into three ſpaces. On that in the midſt, which was higher than the other two, and which was a little riſing in the middle, that no Water might ſtay upon it, but run off immediately, went the People who travell'd on foot. It was pav'd with uncertain Stones, that is, ſuch as had unequal ſides and angles; in which kind of paving, as is ſaid elſewhere, they uſed a ſquare-rule of lead, which they open'd and cloſed according to the figure of the Stones, whence they join'd them perfectly well together, and with great readineſs. The other two ſpaces on each ſide of this were made a little lower, and were cover'd with Sand and fine Gravel, being deſtin'd for the paſſage of Horſes and other Cattle. Each of theſe ſpaces were half as high as that in the middle,

from which they were divided by a range of Stones pitch'd edge-way; and at certain diſtances were other Stones ſomewhat higher, on which they got up when they would mount on Horſeback, the Ancients not having had the Uſe of Stirrups. Beſides the Stones for this purpoſe, there were other Stones a good deal higher, on which at equal ſpaces were engrav'd the Miles of the whole Journey; which Stones were ſet up, and the Ways meaſur'd by *Cneus Gracchus*. The military Ways after the ſecond manner, that is to ſay, made of Sand and Gravel, were raiſed by the Ancients a little in the middle; for which reaſon no water being able to remain upon them, and conſiſting of matter very apt to become quickly dry, they were at all times even and ſmooth without either dirt or duſt. Of this ſort one is to be ſeen in *Friuli*, which by the Inhabitants is call'd the *Poſthumous* way, and it leads into *Hungary*. There is another of them in the Country of *Padua*, which taking its beginning from the ſaid City, at the place call'd *Argere*, paſſes thro' the midſt of *Cicogna*, the *Villa* of the Counts *Edward* and *Theodore de Thiene*, Brothers, and leads to thoſe *Alps* which divide *Italy* from *Germany*. The following draught* is of the firſt manner of Ways, by which may be underſtood how the *Oſtian Way* was made: but I have not thought it neceſſary to make any deſign of the ſecond manner of Ways, becauſe it is a moſt eaſy matter in it ſelf; neither is there any difficulty to make them ſwelling towards the middle, in order to make the Waters run off.

A. *The middle ſpace for the paſſage of People on foot.*
C. *The Ways on each ſide for the paſſage of Carriages and Cattle.*
B. *The Stones by the help of which People got on Horſeback.*
D. *The* military Stones, *to mark the diſtances to and from* Rome.
E. *A ſection of the three Ways, ſhewing their different levels.*

CHAP. IV.

Of ſuch things as are to be obſerv'd in building of Bridges, and what ſituation ought to be choſen for this purpoſe.

THE convenience of Bridges was firſt thought upon, becauſe many Rivers are not fordable by reaſon of their largeneſs, depth, and rapidity: upon which account it may be well ſaid, that Bridges are a principal part of the way; and are nothing elſe, but a Street, or Way continu'd over the Water. Bridges therefore ought to have the ſelf-ſame qualifications, that we judg'd requiſite in all other Fabricks: which are, that they ſhould be convenient, beautiful, and durable. They will be convenient, when they are not raiſed above the level of the reſt of the Way, or that being raiſed, they be of eaſy aſcent and deſcent; and likewiſe when ſuch a place is choſen for Building them, as ſhall be moſt commodious for the whole Province or the whole City, according as they are built within or without the Walls: and therefore that place is to be choſen, to which there is an eaſy paſſage from all other parts; I mean that it be towards the midſt of the Province or the City (as *Nicotris* Queen of *Babylon* did in the Bridge which ſhe built over the *Euphrates*) and not in a corner, where it can be only ſerviceable to a few. Bridges will be fine and durable, if they are made in the manner, and

* *Plate* I.

according to the proportions which ſhall be particulariz'd in this Book: but in chuſing a ſituation for building them, care muſt be taken to pitch upon ſuch a place, as ſhall give ground to hope that the Bridge may be perpetual, and where it may be built with leſs expence if poſſible than elſewhere. Wherefore that place muſt he choſen where the River is ſhalloweſt, and where its bed or bottom is even and uniform, that is to ſay, either of Stone or of Gravel-ſtone: becauſe (as I ſaid in my firſt Book, when I ſpoke of places for laying Foundations) Stone and Gravel are excellent Foundations in Waters. Beſides this, ſwallows and whirlpools ought to be avoided, and that part of the River's bed which is ſandy, or has much Clay in it: becauſe being continually mov'd by the Waterfloods, they often change the bed; and the Foundations being thus undermin'd, the Work muſt neceſſarily fall to ruin. But ſuppoſing the bed of the River to be altogether of Gravel and Sand, then the Foundations muſt be made as I ſhall direct hereafter when I treat of Stone-Bridges. Regard ought likewiſe to be had in chuſing the ſituation of a Bridge, that it be in the part of a River where its courſe is ſtraiteſt; ſince the winding and uneven parts of the Banks are expoſed to be waſh'd away by the Waters, whence the Bridge in ſuch a caſe would become deſtitute of Land-tyes, and remain an Iſland: beſides that, in time of Land-floods the Waters draw into thoſe tortuoſities all the matter that it waſhes from the Banks and the Fields; which not being able to move directly forwards, but reſting there, it ſtops other things, and turning towards the Piles, fills up the Arches, whereby the work ſuffers in ſuch a manner, that by the weight of the Water it falls in time to ruin. You ſhall therefore chuſe ſuch a place for building a Bridge, as may be in the middle of a Country or City, and conſequently commodious for all the Inhabitants: as alſo where the courſe of the River is direct, and its bed ſhallow, equal, and uniform. But ſeeing Bridges are made either of Timber or Stone, I ſhall diſcourſe both of the one and the other way; and at the ſame time give the draughts as well of ſome ancient Bridges, as of ſome modern ones.

CHAP. V.

Of Wooden Bridges, and what is to be obſerv'd in the Building of them.

BRIDGES are made of Wood, either for one particular occaſion, as for all thoſe accidents which were wont to happen in War (of which ſort the moſt celebrated is that which *Cæſar* built over the *Rhine*) or that they may continually ſerve for every body's convenience. Thus we read that *Hercules*, when having kill'd *Geryon*, he victoriouſly drove his Herd thro' *Italy*, built the firſt Bridge that ever was on the *Tyber*, in the place where *Rome* was afterwards founded, and it was therefore call'd the *holy Bridge*. It was ſituated on that part of the River where *Ancus Martius* had afterwards made the *Sublician Bridge*, which was likewiſe all of Timber, and the pieces of it were ſo artificially join'd together, that it might be taken up, and carry'd whitherſoever it ſhould be neceſſary; neither were there any Nails in it, or Iron for any uſe. It is not known how it was contriv'd, only Writers ſay, that it was laid over great pieces of Timber, which ſupported others, from whence it took its name of *Sublician*, becauſe in the *Volſcian* Tongue

Tongue ſuch pieces were called *Sublices.* This was the Bridge that *Horatius Cocles* defended, ſo beneficially for his Country, and ſo glorioufly for himſelf. It was near to *Ripa*, where ſome remains of it may be ſeen ſtill in the middle of the River: for it was afterwards built of Stone by *Emilius Lepidus* when he was *Prætor*, and repair'd by the Emperors *Tiberius* and *Antoninus Pius.* Such wooden Bridges ought to be made very ſubſtantial, and of large pieces of Timber ſtrongly joined together, in ſuch ſort that there be no danger of their breaking; neither by the multitude of Men and Beaſts that paſs over them, nor by the weight of Carriages and Artillery, nor yet that they be ruinated by Inundations or Floods. Wherefore thoſe which are made at the Gates of Cities (which we call Draw-bridges, becauſe they can be drawn up or let down) are, inſtead of paving, commonly overlaid with Rods and plates of Iron, that they may not be broken or worn by the wheels of Carriages or the feet of Cattle. The pieces of Timber (as well thoſe which are fix'd in the Water, as thoſe which make the length and breadth of the Bridge) ought to be long and thick in proportion to what the depth, the breadth, and the rapidity of the River ſhall require. But becauſe the particulars are infinite, no certain or determinate Rule can be given about them: and therefore I ſhall preſent you with ſome draughts, and ſpecify their proportions, whereby every one, as occaſion offers, or his genius is happy, may take his meaſures, and perform what ſhall be worthy of praiſe.

CHAP. VI.

Of the Bridge order'd by Cæſar *to be laid over the* Rhine.

JULIUS CÆSAR having reſolv'd to paſs the *Rhine* (as he ſays himſelf in the fourth Book of his Commentaries) that the *Germans* might be made ſenſible of the *Roman* Power; and judging that it would neither be a way ſecure in itſelf, nor a thing worthy of him or the People of *Rome*, if he ſhould paſs in boats; he forthwith order'd a Bridge, which was an admirable and moſt difficult piece of work, by reaſon of the largeneſs, depth, and rapidity of the River. But how this Bridge was contriv'd, altho' he expreſly writes it, is yet a great Controverſy, becauſe we do not perfectly conceive the force of ſome terms in his deſcription; and therefore various draughts have been made of it, according to mens various Ideas. I having likewiſe mention'd it a little higher, I would not let this opportunity ſlip to ſet down the * deſign which I imagin'd about it in my Youth, when I firſt read thoſe *Commentaries*; becauſe, in my opinion, it agrees very much with the words of *Cæſar*: and alſo becauſe it ſucceeded to a wonder, as experience has ſhewn, in a Bridge, which I ſuddenly built over the *Bacchiglione* without *Vicenza.* It is not however my intention hereby to confute the opinion of others, who were all of them moſt learned Perſons, and highly praiſeworthy, for having left the deſigns of this Bridge in their Books as they underſtood it; thus by their wit and labour greatly facilitating the underſtanding of it to us, that come after them. But before I give my deſign, I ſhall produce the words of *Cæſar*, which are as follows. *Rationem igitur Pontis hanc inſtituit. Tigna bina ſeſquipedalia, paululum ab imo præacuta, dimenſa ad altitudinem fluminis, intervallo pedum duorum inter ſe jungebat. Hæc cum machinationibus immiſſa*

* *Plate* II.

immiſſa in flumen defixerat, feſtuciſque adegerat; non ſublicæ modo directa ad perpendiculum, ſed prona ac faſtigiata, ut ſecundum naturam fluminis procumberent. His item contraria duo, ad eundem modum juncta, intervallo pedum quadragenum, ab inferiore parte contra vim atque impetum fluminis converſa, ſtatuebat. Hæc utraque, inſuper bipedalibus immiſſis, quartum eorum tignorum junctura trabibus diſtabat, binis utrinque fibulis ab extrema parte diſtinebantur: quibus diſcluſis, atque in contrariam partem revinctis, tanta erat operis firmitudo, atque ea rerum natura, ut quo major vis aquæ ſeſe incitaviſſet, hoc arctius illegata tenerentur. Hæc directa injecta materia contexebantur, ac longuriis cratibuſque conſternebantur; ac nihilſecius, ſublicæ, ad inferiorem partem fluminis oblique adjungebantur, quæ pro ariete ſubjectæ & cum omni opere conjunctæ, vim fluminis exciperent: & aliæ item ſupra pontem mediocri ſpatio, ut ſi arborum trunci ſive naves, dejiciendi operis cauſa, eſſent a barbaris miſſæ, his defenſoribus, earum rerum vis minueretur, neu ponti nocerent. The ſenſe of theſe words is, that he order'd a Bridge in this manner. He join'd together two pieces of Timber, each a foot and a half thick, diſtant from each other two foot; ſomewhat ſharp towards the lower end, and as long as the depth of the River required. Having by Engines ſtuck theſe pieces in the bottom of the River, he cauſed them to be ramm'd down, not perpendicularly, but leaning and inclining according to the courſe of the River. Over-againſt theſe, in the lower part of the River, and at the diſtance of forty foot, he fix'd two others join'd together in the ſame manner, inclining theſe againſt the ſtream and force of the River. Between theſe two double Piles they laid long ſummers two foot thick (according to their diſtance from each other) which were at each end held faſt by two braces, which preſſing contrary to one another, ſo great was the ſtrength of the work, and ſuch was the nature of it, that by how much greater was the force of the Water, by ſo much the faſter was all link'd together. Theſe ſummers were join'd with other ſummers acroſs them, and cover'd with long Poles and Hurdles. Over and above this, there were in the lower part of the River Piles or Poſts, which ſloping againſt the Bridge, ſerv'd for buttreſſes againſt the force of the River. There were others added in the upper part of the River, at a little diſtance from the Bridge; that if the Trunks of great Trees or Ships ſhould be let down by the Barbarians to ruin the Works, the violence of ſuch things ſhould be leſſen'd by theſe defences, ſo that the Bridge might not be damag'd. Thus *Cæſar* deſcribes the Bridge by him laid over the *Rhine*; to which deſcription the following draught ſeems to me conformable. The principal parts of it are mark'd by Letters.

A. *The two pieces of Timber join'd together, each a foot and a half thick, ſomewhat ſharp towards the lower end, fix'd in the River not perpendicularly, but leaning according to the ſtream, and at two foot diſtance from each other.*

B. *The other two pieces of Timber fix'd in the lower part of the River over againſt the pieces now mentioned, and forty foot diſtant from them, but leaning againſt the ſtream.*

C. *The figure of one of thoſe pieces by it ſelf.*

D. *The pieces of Timber, two foot thick every way, which made the breadth of the Bridge, which was forty foot.*

E. *One of thoſe pieces by it ſelf.*

F. *The Braces, which being open, or divided the one from the other, and bound contrariwiſe (that is to ſay, one in the inner part, and the other in the outer part; one above, and another under the pieces two foot thick, which made the breadth of the Bridge) did ſo ſtrengthen the whole work, that the greater the*

force of the water, or the heavier any weight was upon the Bridge, the more it united, and the firmer it became.

G. *Is one of the braces or ties by it ſelf.*

H. *The pieces of Timber laid the length of the Bridge, and which were cover'd with Poles and Hurdles.*

I. *The poſts below the Bridge, which leaning againſt, and join'd to the whole work, reſiſted the violence of the ſtream.*

K. *The poſts above the Bridge to defend it, ſhould the Enemy let down the river trees or veſſels to deſtroy it.*

L. *Two of thoſe pieces of Timber, which, join'd together, ſtood in the river, not perpendicularly, but leaning.*

M. *The head of the pieces which made the breadth of the Bridge.*

CHAP. VII.

Of the Bridge on the Ciſmone.

THE *Ciſmone* is a River, which deſcending from the Mountains that divide *Italy* from *Germany*, enters into the *Brenta* a little above *Baſſano*; and as well becauſe it is moſt rapid, as that the Mountaneers ſend down by it great quantities of Timber, a reſolution was taken to make a Bridge over it: yet without fixing any poſts in the Water, becauſe they were ſhaken and worn by the violence of the ſtream, and by the Stones and the Trees which it continually roll'd down; whence Count *Giacomo Angaranno*, who is Lord of the Bridge, was under the neceſſity of renewing it every year. * The invention of this Bridge is, in my opinion, well worth taking notice of, becauſe it may be ſerviceable wherever the ſaid difficulties occur; and further, becauſe Bridges ſo made are ſolid, beautiful and convenient: ſolid, becauſe all their parts mutually ſupport each other; beautiful, becauſe the Carpenter's work is very agreeable; and convenient, becauſe they are plain, and in the ſame line with the reſt of the way. The River, where this Bridge ſtands, is a hundred foot broad. This breadth is divided into ſix equal parts, and at the end of each part (except at the Banks, which are fortify'd with two ſolid butments of Stone) are plac'd the beams which make the bed and breadth of the Bridge; upon which leaving a little ſpace at their extremities, are laid other beams longwiſe, which make the ſides of the Bridge. Over theſe, plumb with the firſt, are diſpos'd on the one and the other ſide the *Collonelli* or little pillars; as we vulgarly call thoſe pieces, which, in ſuch works, are ſet up an end. Theſe little Pillars are faſten'd to the beams (which, as I ſaid, make the breadth of the Bridge) with Iron-cramps, made to paſs thro' a hole order'd for this purpoſe in the heads of the ſaid beams, in that part which advances beyond the pieces that make the ſides. Theſe Cramps, becauſe they are in the upper part along the ſaid ſtrait and plain Pillars perforated in ſeveral places, and in the under part near to the thick beams we mention'd, and with one hole ſufficiently big, went into the Pillars, and faſten'd again below with little Bars or Pins of Iron made for this purpoſe. Hence the whole work becomes in a manner united, ſo that the beams which make the breadth of the Bridge, and thoſe of the ſides, are

* *Plate* III.

are as it were one piece with the Pillars; and the Pillars thus come to ſupport the beams which make the breadth, as theſe again are ſupported by the arms which reach from one Pillar to another. In this manner all the parts mutually ſupport each other, and their nature becomes ſuch, that the greater weight there is on the Bridge, ſo much the faſter do they cloſe together, and increaſe the ſtrength of the work. All the ſaid arms, and other pieces of Timber that make up the body of the Bridge, are no more than a foot in breadth, nor in thickneſs more than three fourths. But thoſe pieces which make the bed of the Bridge, that is ſuch as are laid longwiſe, are a great deal ſmaller.

A. *The elevation of the flank of the Bridge.*
B. *The ſolid Stone-work againſt each Bank.*
C. *The heads of the beams that go acroſs, or make the breadth of the Bridge.*
D. *The beams that make the ſides.*
E. *The* Collonelli *or Pillars, making the rails of the Bridge.*
F. *The heads of the Cramps, with the pins of Iron.*
G. *The braces, which bearing contrary to each other, ſupport the whole work.*
H. *The bottom of the River.*
I. *The plan of the Bridge.*
K. *The beams that go acroſs, and advance beyond the ſides, near which ſides are the holes for the Cramps.*
L. *The ſmall beams which cover the bed of the Bridge.*

CHAP. VIII.

Of three other Inventions, according to which wooden Bridges may be made without fixing any poſts in the Water.

BRIDGES of Wood may be built without any Poſts in the Water, like that on the *Ciſmone*, after three other ways, whereof I would not fail giving the deſigns, becauſe they are of a very fine contrivance: and ſo much the more, that they will be eaſily underſtood by every one who has learnt the terms made uſe of in the Bridge on the *Ciſmone*, ſince theſe Bridges likewiſe conſiſt of beams laid acroſs of pillars, of braces, of cramps, and of beams laid longwiſe, which make the ſides. Now Bridges, according to the firſt invention *, are made thus. Having fortify'd the Banks with ſolid butments as far as requiſite, at a little diſtance from them muſt be laid one of the beams which make the breadth of the Bridge, and then upon it muſt be diſpos'd the beams which make the ſides, which with one of their heads are to lay upon the bank, and be made faſt to the ſame. Then upon theſe, plumb with the beam laid for the breadth, muſt be plac'd the *Collonelli*, or Pillars, which are to be faſten'd into the ſaid beams with cramps of Iron, and ſupported by the braces well fix'd in the head of the Bridge, that is, in the beams which make the ſides, upon the bank. Afterwards leaving as much ſpace, as ſhall be left by the ſaid beam for the breadth, to the bank, you muſt lay the other beam for the breadth, which ſhall be in the ſame manner faſten'd to the beams, which are to be laid over it lengthwiſe, and alſo to the pillars, as the pillars will be ſupported by their braces. And thus muſt it be done from one end to the other, or as far as it will be neceſſary, obſerving always in ſuch Bridges, that in

* *Plate* IV.

in the midſt of the breadth there be a pillar whoſe braces ſhall meet over againſt one another, and in the upper part muſt be put other beams, which reaching from one pillar to another, will keep them united, and (together with the braces plac'd in the head of the Bridge) they will make a portion of a circle leſs than a ſemicircle. Thus making every brace bear up its pillar, and every pillar the croſs beam, and thoſe that make the ſides, every part bears its own weight. Such Bridges are large at their heads, and grow narrower towards the middle of their length. There is none of this ſort in *Italy*; but diſcourſing with Meſſer *Alexander Picheroni* of *Mirandola*, he told me that he ſaw one in *Germany*.

A. *The upright of the flank of the Bridge.*
B. *The heads of the beams which make the breadth of it.*
C. *The beams which are laid longwiſe.*
D. *The pillars.*
E. *The braces, which being made faſt in the beams of the length, ſupport the pillars.*
F. *The beams that bind one pillar to the other, reaching between them, and making a portion of a circle.*
G. *The butments upon each bank.*
H. *The heads of the iron pins.*
I. *The bottom of the river.*
K. *The plan of the bridge.*
L. *The firſt beams, which at one head are ſupported by the bank, and at the other by the firſt croſs beam.*
M. *The ſecond beams, which are borne up by the firſt and ſecond beams of the breadth.*
N. *The third beams, borne up by the ſecond and third beams of the breadth.*
O. *Croſs beams, which make the bed of the bridge.*
P. *After theſe follow the beams which make the breadth, borne up (as I ſaid) by the pillars to which they are faſten'd, and the pillars ſupported by their braces.*

THE invention of the * following Bridge has the upper part, which ſupports the whole weight, made of a portion of a circle leſs than a ſemi-circle; and has the braces which go from one pillar to another ſo made, that they croſs each other in the midſt of the ſpace between the pillars. The beams which make the ground or bottom of the Bridge, are faſten'd to the pillars by cramps, as in the former invention. For a greater ſtrength two beams may be added at each end of the Bridge, which being ſo faſten'd in the pilaſters at one end of their heads, come leaning with the other head under the firſt pillars, becauſe ſuch would help much to bear up the weight of the Bridge.

A. *The upright of the Bridge in flank.*
B. *The beams which make the ſides of the Bridge.*
C. *The heads of the beams which make the breadth.*
D. *The heads of the iron pins.*
E. *The beams, which plac'd under the Bridge at each head, help to bear up the weight.*
F. *The braces which ſerve as rails to the Bridge.*
G. *The pillars.*
H. *The butments againſt each bank.*
I. *The bottom of the river.*
K. *The bed of the Bridge.*

BRIDGES of this † laſt invention may be made with a greater or a leſſer Arch than what is ſhewn by the draught, according as ſhall be found neceſſary from the quality of the ſituation, and the greatneſs of the River. The height of the Bridge, in which are the rails or braces that go from one pillar to another, will be the eleventh part of the breadth of the River. All the *radii* or lines of the

pillars

* *Plate* V. † *Plate* VI.

pillars muſt correſpond to the center, which will make the work very ſtrong; and the pillars will bear up the beams laid athwart and along the Bridge, as in the foregoing ones. The Bridges of theſe four kinds may be made as much in length as occaſion ſhall require, but all their parts muſt be made proportionably greater.

A. *The upright of the Bridge in flank.*
B. *Its bottom or bed.*
C. *The pillars.*
D. *The braces which ſupport the pillars.*
E. *The heads of the beams which make the breadth of the Bridge.*
F. *The heads of the iron pins.*
G. *The buttreſſes againſt each bank.*
H. *The bottom of the river.*

CHAP. IX.

Of the Bridge of Baſſano.

NEAR *Baſſano*, a place at the foot of the *Alps* which ſeparate *Italy* from *Germany*, I have order'd the wooden Bridge that follows * over the *Brenta*, a moſt rapid River, that empties itſelf into the Sea near *Venice*, and was call'd by the ancients *Meduacus*, to which (as *Livy* relates in his firſt *Decad*) *Cleonymus* the *Spartan* came with a Fleet before the *Trojan* War. This River, in the place where the Bridge is built, is in breadth one hundred and eighty foot. This breadth is divided into five equal parts, becauſe the two banks being well fortified with beams of Oak and Larix, there were four rows of piles placed in the River, diſtant every row from another thirty-four foot and a half; each of theſe rows conſiſt of eight piles thirty foot long, a foot and a half thick every way, and two foot diſtant from each other: whence the whole length of the Bridge came to be divided into five ſpaces, and its breadth to be twenty-ſix foot. Over theſe rows of piles were plac'd Joyſts, long in proportion to the ſaid breadth (thoſe Joyſts ſo placed are vulgarly call'd croſs-pieces) which being faſten'd into the Piles fix'd in the River, keep them all join'd and united together. Over theſe croſs pieces, plumb to the ſaid Joyſts, were placed eight other Joyſts, according to the length of the Bridge, and reaching from one row to the other: and by reaſon that the diſtance between theſe rows is very great, whence the Joyſts laid longwiſe might difficultly bear any great weight that ſhould come over them, there were placed between theſe and the croſs pieces certain beams that ſerve as ſhouldering pieces to bear part of the weight. Beſides this, there were other beams, which being made faſt in thoſe Piles that ſtood in the River, and leaning one towards the other, came to be join'd to another beam placed in the middle of the ſaid diſtance under each of the beams of the length. Theſe leaning beams ſo order'd repreſent a portion of a circle riſing the fourth part of its diameter. And thus the work becomes beautiful as to its form, and ſtrong withal, by reaſon the beams, which make the length of the Bridge, come to be double in the midſt. Over theſe, and acroſs them, are put other beams, which make the bed or bottom of the Bridge, projecting their heads a little beyond the reſt of the work, and they appear like the modilions of a Cornice. On the one and the other ſide-beams of the Bridge are placed the Pillars which ſupport the roof, and make it ſerve for a Gallery; all which render the whole work moſt convenient and beautiful.

* *Plate* VII.

A. *The upright of the Flank of the Bridge.*
B. *The rows of Piles ſtanding in the Water.*
C. *The heads of the croſs pieces.*
D. *The beams which make the length of the Bridge, and over which may be ſeen the heads of the joyſts that make the ground of it.*
E. *The beams, which leaning towards each other, go to unite themſelves with other beams placed in the middle of the diſtance between the rows of Piles, whence in that place the beams come to be double.*
F. *The Pillars that ſupport the roof.*
G. *The elevation and ſection of one end of the Bridge.*
H. *The plan of the rows of Piles with their ſpurs, keeping the ſaid Piles from being hurt by the Timber that floats down the River.*
I. *The ſcale of ſixty foot, by which the whole work is meaſur'd.*
K. *The ſurface of the Water.*

CHAP. X.

Of Bridges of Stone, and what ought to be obſerv'd in the Building of them.

AT firſt men made Bridges of Wood, as having a regard only to their preſent neceſſity: but when they begun to think of immortalizing their names, and that their minds were enlarg'd by riches, and furniſh'd with conveniencies for attempting greater matters, they begun alſo to make Bridges of Stone; which are more durable and expenſive, as well as more glorious for the Builders of them. In ſuch Bridges four things are to be chiefly conſider'd, *viz.* the heads, which are made at the banks; the piles, or pilaſters, which are founded in the River; the arches, ſupported by theſe pilaſters; and the pavement made over the arches. The heads of Bridges ought to be made the moſt firm and ſolid that can be; ſince they not only ſerve to ſupport the weight of the arches, as do the other pilaſters, but that moreover they keep the whole Bridge together, and keep the arches from cracking or opening. For this reaſon they are made where the banks are of Stone, or at leaſt of ſolid Earth: and there being no banks of earth naturally ſolid enough for this purpoſe, they muſt be made ſtrong and firm by art, adding other arches or buttreſſes; ſo that if the bank ſhould happen to be deſtroy'd by the water, yet the way to the Bridge might not be interrupted. The pilaſters, which are to be made according to the largeneſs of the River, ought to be of an even number; as well becauſe we ſee that nature has produc'd from this number all thoſe things, which, conſiſting of more than one part, are to bear any weight, as the feet of men and all other animals may convince us: as likewiſe becauſe ſuch a compartment is more beautiful to look upon, and renders the work ſtronger, ſince the courſe of the river in the middle (in which place it is naturally moſt rapid for being fartheſt from the banks) is thus free, and does not endamage the pilaſters by continually ſhaking them. The pilaſters therefore ought to be ſo comparted, as to fall into that part of the river where the ſtream is leaſt rapid. The greateſt courſe of the water is, where thoſe things come together that ſwim upon it, which at the riſing of floods is moſt eaſily diſcern'd. The foundations of Bridges muſt be

be made at the time of the year when the waters are loweſt, which is in autumn: and if the bottom of the River be of Stone, or Gravel-ſtone, or any ſoft Stone, which (as I ſaid in the firſt Book) is a ſort of Earth which is partly Stone, you have the foundations made to your hand, without any fatigue of digging, becauſe theſe are excellent foundations by nature. But if the bottom of the River be of Sand or Gravel, you muſt dig in the ſame till you come to ſolid ground: or if this ſhould prove a difficult task, you muſt dig pretty deep in the Sand or Gravel, and then you muſt thruſt in piles of Oak, which, with the iron whereby their points are to be arm'd, will reach the ſolid and firm ground. To lay the foundation of the pilaſters, one part only of the bed of the River ought to be enclos'd from the Water, and then to build there, that, the other part being left open, the Water may have its free courſe; and ſo to proceed from part to part. The pilaſters ought not to be leſs in dimenſion, than the ſixth part of the breadth of the arch; nor, ordinarily ſpeaking, greater than a fourth. They ought to be made of great Stones, which are to be join'd together with cramps and bars of iron, faſten'd with Lead; that by ſuch ligaments they may be, as it were, all of one piece. The fronts of the pilaſters, or the ſide that faces the ſtream, are wont to be made angular, that is, that they terminate in a right angle; and ſometimes they are made ſemicircularly, to the end they may divide or break the Water, and that ſuch things as are impetuouſly brought down the River, ſtriking againſt them, may be ſhov'd from the pilaſters, and paſs thro' the middle of the arch. The arches ought to be made very firm and ſtrong, and with great Stones well joined together, that they may be able to reſiſt the continual paſſing of carriages, and reſiſt any weight that ſhall happen to come over them. Thoſe are the ſtrongeſt of all arches, which conſiſt of a ſemicircle, becauſe they entirely reſt upon the pilaſters, without preſſing each other: but if by reaſon of the nature of the ſituation, and the diſpoſition of the pilaſters accordingly, a perfect ſemicircle ſhould not be convenient, as rendring the aſcent and deſcent difficult, we muſt then make uſe of a leſſer ſection, making ſuch arches as riſe only the third part of their diameter; and in this caſe, the foundations on the banks muſt be made extremely ſtrong. The pavement of theſe Bridges ought to be made in the very ſame manner with thoſe of Ways and Streets, whereof we have treated above. And now having ſeen what is to be conſider'd in general about building Stone-Bridges, 'tis time we proceed to particular draughts and deſigns.

CHAP. XI.

Of certain famous Bridges built by the Ancients, with the draughts of the Bridge of Ariminum.

MANY Bridges were built by the Ancients in divers places; but in *Italy*, and eſpecially on the *Tyber*, there were abundance; whereof ſome may be ſeen yet entire, and of others remain only the ancient veſtiges. Thoſe which are to be ſtill ſeen entire on the *Tyber*, are that of the Caſtle of *St. Angelo*, formerly call'd the *Elian Bridge*, from the Emperor *Elius Adrianus*, who built here his own Sepulchre: The *Fabrician Bridge*, built by *Fabricius*, now call'd Four-head Bridge, or *Ponto quattro capi*, from the four heads of *Janus*, or of four *Termini*

Termini which are plac'd on the left hand as you go on this Bridge, by which the Iſland of the *Tyber* is join'd to the City: The *Ceſtian Bridge*, at this day the Bridge of *St. Bartholomew*, which from the other ſide of the Iſland paſſes to *Tranſtevere*, or over *Tyber*: The Bridge call'd *Senatorio*, from the Senators, and *Palatino* from the neighbouring Hill, made of ruſtick work, and now call'd the Bridge of *St. Mary*. But the Bridges, whereof only the ancient remains are to be ſeen in the *Tyber*, are the *Sublician Bridge*, named alſo the *Lepidan* Bridge, from *Emilius Lepidus*, who, from having been firſt of wood, made it of Stone, and was near *Ripa*. The *Triumphal Bridge*, whoſe pilaſters are to be ſeen over-againſt the Church of the *Holy Ghoſt*: The *Janiculan Bridge*, ſo call'd from its vicinity to Mount *Janiculus*, which, becauſe repair'd by Pope *Sixtus* the fourth, is now call'd *Ponte Siſto*: and the *Milvian Bridge*, now call'd *Ponte molle*, in the *Flaminian* way, a little leſs than two miles diſtant from *Rome*, and retaining of its ancient form only the foundations. It is ſaid to have been built in the time of *Sylla*, by *Marcus Scaurus* the Cenſor. There are likewiſe to be ſeen the ruins of a Bridge built by *Auguſtus* of ruſtick work, upon the *Vera*, a moſt rapid River near *Narni*: and upon the *Metaurus*, at *Calgi* in *Umbria*, is ſeen another, which is likewiſe of ruſtick work, with certain counterworks on the banks at each end of it, which make it exceeding ſtrong, and ſupporting the Road. But among all the famous Bridges, that is recorded as a miracle which *Caligula* made from *Puteoli* to *Baiæ*, in the middle of the Sea, almoſt three miles long; and 'tis ſaid that he laid out upon it all the revenues of the Empire. Extraordinary great, and moſt deſerving admiration, was that Bridge built over the *Danube* in *Tranſilvania*, and on which were read theſe words; *PROVIDENTIA AUGUSTI VERE PONTIFICIS VIRTUS ROMANA QUID NON DOMET? SUBJUGOR ECCE RAPIDUS DANUBIUS.* This Bridge was afterwards ruin'd by *Adrian*, that the Barbarians might not come over it to plunder the *Roman* Provinces; and its pilaſters are yet to be ſeen in the midſt of the River. But ſeeing, of all the Bridges that I have obſerv'd, that appears to me to be the fineſt, and the moſt worthy of conſideration (as well for the ſtrength as the compartment of it) which was built at *Ariminum*, a City of the *Flaminian* Tribe, and as I believe, by *Auguſtus Cæſar*, I have given the * draughts of it, which are thoſe that follow. It is divided into five arches, whereof the three middlemoſt are equal, being 25 foot in breadth; and the two next the banks are leſs, being only 20 foot. All theſe arches conſiſt of a ſemicircle, and the depth of their *Archivolte* is a tenth part of the light or void of the greater, and an eighth part of a light of the leſſer ones. The pilaſters are in thickneſs a little more than the half of the light of the greater arches. The angle of the ſpurs, that cut the water, is a right angle: which, as I obſerve, the Ancients follow'd in all their Bridges, becauſe it is much ſtronger than the acute angle; and therefore leſs expos'd to be ruin'd by Trees, or any other matter, that comes down with the ſtream. Plumb over the Pilaſters, there are, on the ſides of the Bridge, ſome niches wherein there muſt have been formerly Statues. Over theſe niches, quite the length of the Bridge, is a Cornice, which altho' it be plain, adds nevertheleſs a moſt agreeable ornament to the work.

A. *The Cornice which is over the niches, quite the length of the Bridge.*
B. *The ſurface of the Water.*
C. *The bottom of the River.*
D. *A ſcale of* 30 *foot, by which the whole work is meaſur'd.*

* *Plate* VIII.

CHAP. XII.

Of the Bridge of Vicenza, *that is over the* Bacchiglione.

TWO Rivers run thro' *Vicenza*, the one of which is call'd the *Bacchiglione*, and the other the *Rerone*. This laſt juſt without the City enters into the firſt, and ſo immediately loſes its name. Over theſe Rivers are two ancient Bridges. Of that which is over the *Bacchiglione* are ſeen the pilaſters and one arch ſtill entire, near the Church of *St. Mary of the Angels:* the reſt is all modern work. This * Bridge is divided into three arches: that in the middle is thirty foot broad, the other two are twenty two foot and a half each; which was ſo contriv'd, that the River might enjoy its courſe the freer in the middle. The pilaſters are in thickneſs the fifth part of the light of the leſſer arches, and the ſixth of the greater. The arches riſe from their *Impoſt*, the third part of the diameter of the void of the arch. Their *Archivolte* has in depth the ninth part of the ſmaller arches, and the twelfth part of that in the middle, and they are wrought in the manner of an architrave. In the uppermoſt part of the pilaſters, under the impoſt of the arches, ſhoot or jut forth certain Stones, which in the building of the Bridge ſerv'd to ſupport the beams, over which was made the centering of the arches: and thus the danger was avoided of any flood's taking away the poſts (to the ruin of the work) which muſt have been otherwiſe fix'd in the river for making the ſaid centering.

A. *The parapet of the Bridge.*
B. *The ſtones that jut out from the top of the pilaſters, and ſerve to bear the centers of the arches.*
C. *The architrave round the arches.*
D. *The heads of the Bridge.*
E. *The architrave round the arches at large.*
F. *Scale of thirty foot, by which this work is meaſur'd.*

CHAP. XIII.

Of a Stone Bridge of my own invention.

VERY fine, in my opinion, is the deſign of the † following Bridge, and perfectly ſuited to the place where it was to be built, which was in the middle of one of the greateſt and moſt celebrated Cities of *Italy*, the metropolis of many other Cities, and trading almoſt to all parts of the World. The river is very large, and the Bridge was to have been built juſt at the very ſpot where the Merchants come together to negotiate and treat of their Affairs. Wherefore, as well to preſerve the grandeur and dignity of the ſaid City, as very conſiderably to encreaſe the revenues of the ſame, I deſign'd the Bridge ſo broad as to make three Streets upon it; that in the middle large and fine, and the other two on the ſides ſomewhat leſs. On both ſides of each of thoſe Streets I order'd Shops, whereof thus there would have been ſix ranges. Beſides this, there were to have been made galleries at each head of the Bridge, and in the middle over the great arch, wherein the Merchants ſhould keep their exchange, and which would have

* *Plate* IX. † *Plate* X.

occaſion'd no leſs ornament than convenience. The going to the galleries at the heads ſhould have been by ſome few ſteps, and level with theſe would be the ground, or pavement of the reſt of the Bridge. It ought not to appear ſtrange or new, that galleries ſhould be made over Bridges, ſince the *Elian* Bridge at *Rome*, whereof we ſpoke in its proper place, was anciently all cover'd with galleries, having columns of braſs, with Statues, and other admirable ornaments: beſides that upon this occaſion, for the reaſons mention'd already, it was almoſt neceſſary to make galleries. The ſelf-ſame order and rules are obſerv'd in the proportions of the pilaſters and the arches, that have been obſerv'd in the other Bridges aforegoing, and every one may eaſily find them himſelf.

The parts of the Plan.

A. *The beautiful and large ſtreet made in the middle of the breadth of the Bridge.*
B. *The leſſer ſtreets on the ſides.*
C. *The ſhops on the outſide over the river.*
D. *The galleries at each head of the Bridge.*
E. *The ſteps that lead up to thoſe galleries.*
F. *The galleries in the middle, over the great arch of the Bridge.*

THE parts of the elevation correſpond to thoſe of the plan, and therefore are eaſily underſtood without any further explication.

G. *The elevation of the ſhops fronting all the three ways* A. B. B.
H. *The lines of the water's ſurface.*
I. *A proſpect of the ways leading to the ſmall ſtairs of the Bridge.*

CHAP. XIV.

Of another Bridge of my invention.

BEING requeſted by ſome Gentlemen to give them my opinion about a Bridge which they intended to build of Stone, I made the following draught * for them. The river, at the place where the Bridge was to be built, is one hundred and eighty foot broad. I divided this whole breadth into three arches, and made that in the middle ſixty foot broad, as each of the others forty eight. The pilaſters which govern and ſupport the arches were twelve foot thick, and ſo were a fifth part of the middle arch, and a fourth of the leſſer ones. On this occaſion I ſomewhat vary'd from the common meaſures of pilaſters, making them very thick, and to jut very far from the body of the Bridge; that they might the better reſiſt the force of the river, which is extremely rapid, and alſo reſiſt the Stones and Trees which roll down with the ſtream. The arches were to have been a portion of a circle leſs than a ſemicircle, that the aſcent and deſcent of the Bridge might be plain and eaſy. I made the *Archivolte* of the arches a ſeventeenth part of the void of the middle arch, and a fourteenth of the other two. This Bridge might have been adorn'd with niches over the pilaſters, and with Statues; as there might reign a cornice the whole length of it on each ſide, which the ancients are known to have done ſometimes, as in the Bridge of *Ariminum* made by *Auguſtus Cæſar*, the draughts of which are given above.

A. *The ſuperficies of the water.*
B. *The bottom of the river.*
C. *The*

* *Plate* XI.

C. *The ſtones that jut out, for the uſes above-mention'd.*

D. *The ſcale of forty foot, by which the whole work is meaſur'd.*

CHAP. XV.

Of the Bridge of Vicenza, *that is over the* Rerone.

THE other ancient *Bridge, which, as I ſaid before, is in *Vicenza* over the *Rerone*, is vulgarly call'd *il ponte belle beccarie*, or the Butchers Bridge, becauſe it is near the greateſt ſhambles of the City. This Bridge ſubſiſts entire, and differs little from that on the *Bacchiglione*; for this is likewiſe divided into three arches, whereof the middlemoſt is larger than any of the other two. All theſe arches are a portion of a circle leſs than a ſemicircle, and have no ornaments at all. The leſſer ones riſe above their *impoſt* the third of their breadth, and that in the middle a little leſs. The pilaſters are in thickneſs the fifth part of the diameter of the leſſer arches, and have at their extremities, under the impoſts of the arches, the Stones that jut out for the uſes before-mentioned. Both the one and the other of theſe Bridges are made of *Coſtoza* Stone, which is a ſoft Stone, and is ſaw'd like wood. Of the ſame proportions with theſe two at *Vicenza*, are four in *Padua*, three of which have only three arches; and they are the Bridge of *Altina*, that of St. *Lawrence*, and that which is call'd *Pontecorvo*, or Raven-Bridge: the fourth which is call'd *Ponte molino*, or Mill-Bridge, has five arches. In all theſe Bridges it is to be obſerv'd, that the greateſt care has been taken to join well the Stones, which, as I have often adviſ'd, is abſolutely neceſſary in all Buildings.

A. *The ſide of the Bridge.*

B. *Projecting Stones to bear the centers of the arches.*

C. *Pilaſters or buttreſſes at each bank.*

D. *Scale of forty foot, with which this Bridge was meaſur'd.*

CHAP. XVI.

Of the chief Squares, Markets, and open places of a City, and the Edifices that ought to be made about them.

BESIDES the Streets, of which we have treated above, it is alſo requiſite that there be diſtributed in Cities, proportionably to their extent, greater or leſſer Squares, or open places, where People may come together to treat about their uſeful and neceſſary affairs. But ſince ſuch places may be deſtin'd to different purpoſes, ſo a proper and convenient ſituation ought to be aſſign'd to each of them. The leaving thoſe great and open places in a City, over and above the foreſaid conveniencies of walking, diſcourſing, and bargaining, brings withal very great ornament along with it; as when there is at the head of a Street a beautiful and ſpacious place, from which you have the proſpect of ſome fine Building, and eſpecially of ſome Church. As it would be advantageous to have ſeveral ſuch places in

* *Plate* XII.

in different parts of the City, ſo it is much more neceſſary, as well as honourable and magnificent, that there be one principal Square, which may truly deſerve the name of a publick place. Theſe principal Squares ought to have dimenſions in proportion to the number of the People; that they may be neither too ſmall for their uſes and conveniencies, or that being too great, the place may not ſeem uninhabited. In maritime Cities they ought to be made near the haven, and in inland Cities about the middle of the ſame, that the Citizens may conveniently come to them from all parts. They ought to be deſign'd after the manner of the ancients. Round theſe Squares ſhould be large porticos in proportion to the height of their columns: the uſe of which is to avoid Rain, Snow, and every injury we may receive from the Air or the Sun. But all the Edifices built round them, ought not to be (according to *Alberti*) higher than the third part of the breadth of the Square, nor lower than the ſixth. To the porticos there muſt be an aſcent by ſteps, which are to riſe the fifth part of the height of the columns. Squares receive extraordinary beauty from arches erected at the entrance into them, that is, at the head of the Streets that go out of them. How ſuch arches ſhould be built, why they were anciently made, and whence denominated *Triumphal*, I ſhall ſhew at large in my *Book of Arches*, where the draughts of many of them will be found; and whereby great light will be imparted to thoſe who would at this time, or hereafter, erect ſuch arches to the honour of Princes, Kings, and Emperors. But to return to the principal Squares, to theſe ought to be join'd the Prince's Palace, or that for the meeting of the States, as the Country is either a Monarchy or a Republick. The Exchequer or the publick Treaſury, where the Money and Treaſure of the publick is lodg'd, ought to join them likewiſe, as well as the Priſons. Theſe latter were anciently of three ſorts; one for ſuch as were debauch'd and immodeſt, who were detain'd there till they were reform'd, and which we now aſſign to Fools or mad Folks: another was for Debtors, which is alſo in uſe among us: and the third was for Traitors and other wicked Perſons, either already condemn'd, or to be condemn'd. Theſe three ſorts are ſufficient, ſince all the faults of Men proceed either from immodeſty, or contumacy, or perverſity. The Exchequer and the Priſons ought to be ſituated in very ſecure places, ſurrounded with high Walls, and guarded againſt the violence or treachery of the ſeditious Inhabitants. The Priſons in particular ought to be built healthy and convenient, becauſe they are ordain'd for the ſafe cuſtody, and not for the puniſhment or execution of the wicked or any other ſort of delinquents. Wherefore the Walls of them ſhould be made in the middle with great Stones, bound together with cramps, and faſtenings of Iron or Copper, and then be lin'd on both ſides with Bricks: for in ſo doing the humidity of the Stones will not render the Priſon unhealthy, nor the Walls loſe any of their ſtrength. Paſſages ought to be made round them, and the Apartments of the Keepers be near at hand; that if the Priſoners contrive any thing, it may be quickly perceiv'd. Beſides the Exchequer and the Priſons, the Senate and Council-houſe, where matters of State are tranſacted, ſhould join the great ſquare. The Senate-houſe ought to be ſpacious, and proportionable to the dignity and number of the Inhabitants. If it be ſquare, the height muſt exceed the breadth of it by near one half; but if it be oblong, it muſt be half as high to the roof, as the length and the breadth put together. In the middle of the height ought to be made large corniſhes projecting from the Walls; to the end that the voice of thoſe who debate may not be dilated in the height of the room, but, being reflected back, may the better reach the ears of the

the auditors. On the ſide of the Square that is towards the warmeſt region of Heaven, ſhould be made the *Baſilica*, or the fabrick for the Courts of Juſtice, whither a great part of the People reſort, eſpecially People of buſineſs: but I ſhall diſcourſe particularly of the *Baſilica's*, after I have ſhewn how the *Greeks* and the *Romans* made their Squares, and that I have given the draughts of each.

CHAP. XVII.

Of the Squares, or Agora's *of the* Greeks.

THE *Greeks* (as we are inform'd by *Vitruvius* in the firſt Chapter of his fifth Book) made the *open places in their Cities of a ſquare form*, encompaſſing them with ample and double porticos, and thick columns; that is to ſay, diſtant from each other a diameter and half of a column, or at the moſt two diameters. Theſe Porticos were as broad as the columns were long; ſo that by reaſon of their being double, the place for walking was as ſpacious as twice the length of a column, which made it very convenient. Over the firſt columns (which, regard being had to the place where they ſtood, muſt, in my opinion, have been *Corinthian*) were other columns, a fourth part leſs than the firſt. Theſe had under them a Corridor of the height that convenience requir'd: becauſe theſe upper porticos were likewiſe deſtin'd for walking and diſcourſing, and for perſons to ſtand commodiouſly in them to behold any ſhews that might be exhibited in the Square, either out of devotion or pleaſure. All theſe porticos muſt of courſe have been adorn'd with niches and ſtatues, ſince the *Greeks* uſed to be highly delighted with ſuch decorations. Near to theſe Squares were the *Baſilica*, the Senate-houſe, the Priſons, and all the other places we mention'd above: tho' *Vitruvius*, when he teaches how they ought to be built, does not name that place for them. Moreover, becauſe (as he ſays in the ſeventh Chapter of his firſt Book) the Ancients uſed to build near their Squares the Temples conſecrated to *Mercury* and *Iſis*, as being Gods preſiding over Traffick and Merchandize; and that in *Pola* a City of *Iſtria* there are to be ſeen two Temples upon the great Square, wholly like one another in form, bigneſs, and ornaments: I have inſerted them in the following draught on each ſide of the *Baſilica*. Here follow the plan and the elevation, of which, with all their particular members, you'll ſee a more diſtinct account in my Book of Temples.

* The *Greek* Architecture is fitter for us, than that of the *Romans*; for their Buildings were for Uſe, and not ſo profuſe.

A. *The Square*, Agora, *or great place.*
B. *The double porticos.*
C. *The* Baſilica, *where the judges had their tribunals.*
D. *The temple of* Iſis.
E. *The temple of* Mercury.
F. *The Senate-houſe.*
G. *A portico and ſmall court before the treaſury.*
H. *A portico and ſmall court before the priſons.*
I. *The gate of the hall, from which people paſt into the Senate-houſe.*
K. *Paſſages round the Senate-houſe, by which people came to the porticos of the ſquare.*
L. *The turning or corners of the porticos of the ſquare.*
M. *The turning of the porticos on the inſide.*
N. *The plan of the walls of the little courts of the temple.*
O. *Paſſages*

* *Plate* XIII.

O. *Paſſages round the Exchequer and the Senate-houſe.*

The elevation that is on the back of the plan *, is of one part of the Square.

Q. *Half of the breadth of the portico towards the Square.*

CHAP. XVIII.

Of the Squares and Forums, *or open Places and Markets of the* Romans.

THE *Romans* and the other *Italians* (as *Vitruvius* affirms in the place above quoted) departing from the uſage of the *Greeks*, made their † Squares longer than they were broad; ſo that dividing the length into three parts, two of them made the breadth: becauſe the ſpectacle of the gladiators being exhibited in theſe places, this figure was more convenient for their purpoſe than a perfect Square: for which reaſon likewiſe they made the inter-columnation of the porticos, that went round the Square, of two diameters and a quarter of a column, or even of two diameters, that the view of the People might not be hinder'd by the thickneſs of the columns. The porticos were as broad as the columns were high, and under them were the Bankers and Goldſmiths ſhops. The upper columns were a fourth part leſs than the under ones; becauſe, as I have taught in my firſt Book, all pieces below, conſidering the weight that they bear, ought to be ſtronger than thoſe above. In that part which fronted the warmeſt region of heaven, they plac'd the *Baſilica*; which I have mark'd in the draughts of thoſe Squares in the length of two Squares, and the porticos round the inſide are broad a third part of the middle ſpace. Their columns are as long as the porticos are large, and may be made of what order one pleaſes. On the ſide fronting the north I have placed the Senate-houſe, a ſquare and a half in length. The height of it is half its breadth and length put together. This *Curia* or Senate-houſe (as I ſaid above) was the place where the Senate met to conſult about affairs of State.

A. *Winding ſtairs, open in the middle, and leading to the upper parts.*

B. *A paſſage by which people enter'd into the porticos of the Square.*

C. *Porticos, and a little court on one ſide the* Baſilica.

D. E. *Places for the Bankers, and the moſt reputable Trades of the City.*

F. *Places for the Secretaries, where were repoſited the deliberations and reſolutions of the Senate.*

G. *The Priſons.*

H. *The turning or corners of the porticos of the Square.*

I. *The entrance into the* Baſilica, *or Courts of Juſtice, by one ſide.*

K. *The turning of the porticos of the little Courts on one ſide of the* Baſilica.

The elevation that follows ** on a larger ſcale, is a part of the porticos of the Square.

L. *Half of the breadth of the portico towards the Square.*

* *Plate* XIV. † *Plate* XV. ** *Plate* XVI.

CHAP. XIX.

Of the ancient Baſilicas, *or Courts of Juſtice.*

THESE places * were anciently call'd *Baſilicas*, where the judges attended to do juſtice under covert, and where ſometimes great and important affairs were tranſacted: whence we read, that the *Tribunes* of the People cauſed to be taken away a column that interrupted their benches, from the *Baſilica Portia*; which was at *Rome* near the Temple of *Romulus* and *Remus*, and is now the Church of St. *Coſmus* and *Damianus*. Of all the ancient *Baſilicas* that was the moſt celebrated, and reckon'd one of the wonders of the City, which *Paulus Emilius* built between the Temples of *Saturn* and *Fauſtina*; and upon which he expended a thouſand five hundred talents beſtow'd on him by *Cæſar*, which amount, as well as we can compute, to nine hundred thouſand Crowns. *Baſilicas* then ought to be join'd to the Square, as I have obſerv'd in thoſe already mention'd, both which ſtood in the *Roman Forum*, and were turn'd to the warmeſt region of Heaven: that the People of buſineſs, and thoſe who were at Law, might come together in the ſpring time, and continue there conveniently. In breadth they ought to be no leſs than a third part of their length, nor more than the half; I mean if the ſituation of the place permits it, and that you are not forc'd to change the meaſures of your compartment. Of no ſuch ancient Edifice is there the leaſt veſtige remaining: wherefore, following the directions of *Vitruvius* about them in the place before-mentioned, I have made the following draughts†; in which the *Baſilica* in the middle part of it, that is, within the columns, is in length two ſquares. The porticos that are on the ſides, and at the end of the entry, are in breadth a third part of the middle ſpace. The columns are as high as the porticos are large, and may be made of what order you will. I have made no portico in the end oppoſite to the entrance, becauſe, in my opinion, it would be better to have there a great nich, made of a portion of a circle leſs than a ſemicircle, where might ſtand the *Prætor*'s Tribunal, or that of the Judges, if there be many; as there ſhould be an aſcent to it by ſteps, that it might have the more of Majeſty and Grandeur. I deny not in the mean time, but the porticos might reach quite round, as I have done in the deſigns of thoſe *Baſilicas*, which are in the draughts of the ſquares. You go along the porticos to the ſtairs, which are on each ſide of the ſaid nich, and leading you to the upper porticos. Theſe upper ones have their columns a fourth part leſs than thoſe below. The corridor which is between the upper and the lower columns, ought to be in height a fourth part leſs than the length of the upper columns; that they, who are about their buſineſs in the upper porticos, may not be ſeen by thoſe who are buſy below in the *Baſilica*. The foremention'd *Vitruvius* made a *Baſilica* at *Fano*, with other compartments, which, according to the proportions he gives of it in the place above quoted, muſt have been an Edifice of great beauty and magnificence. I had inſerted the draughts of it here, but that the moſt reverend *Barbaro* has with the greateſt induſtry done it in his *Vitruvius*.

A. *The Entrance into the* Baſilica.
B. *The nich for the Tribunal over againſt the entrance.*
C. *The porticos round the* Baſilica.
D. *The ſtairs that lead to the upper parts.*
E. *Houſes of Office.*

Of

* *Plate* XVII. † *Plate* XVIII.

Of the following *designs at large the 18th plate repreſents the inſide of the colonade towards the *Baſilica*, and the 19th ſhews half of the nich for the Tribunal over-againſt the entrance of the *Baſilica*.

CHAP. XX.

Of the Baſilicas, *or Courts of Juſtice of our own times.*

AS the Ancients † made their *Baſilicas* after ſuch a manner, that in the Spring and Summer People might come together there, to treat of their affairs, and to carry on their Law-ſuits; ſo in our times every City, both in *Italy* and out of it, do erect certain ſpacious publick Halls, which may be deſervedly term'd *Baſilicas:* becauſe that near to them is the reſidence of the ſupreme Magiſtrate, whence they come to be part of the ſame; and the proper ſignification of this word *Baſilica* is a royal Houſe, as well for the reaſon now given, as by reaſon the judges attend there to adminiſter juſtice to the People. The *Baſilicas* of our times are different herein from the ancient *Baſilicas*, that the latter were on the ground, or level with the ſurface of it; whereas the former are over arches, in which Shops are placed for ſeveral Arts and Merchants wares; the Priſons being likewiſe there, and other places for the ſervice of the publick. Moreover, the ancient *Baſilicas* had their porticos on the inſide, as may be perceiv'd by our draughts; and the modern ones, on the contrary, either have no porticos at all, or they have them on the outſide towards the ſquare or open place. Among theſe modern Halls, there is one very remarkable in *Padua*, (a City illuſtrious for its Antiquity, and famous over the whole World for its Univerſity) in which the Gentlemen meet every day, this place ſerving them for a cover'd ſquare to walk in. The City of *Breſcia*, which is magnificent in all its undertakings, has lately built one of thoſe Halls, admirable for its grandeur and ornaments. There is another of them in *Vicenza*, of which alone I have given the draughts, becauſe the porticos around it are of my own invention: and that I make no doubt, but that this Edifice may be compar'd to the ancient Fabricks, and be reckon'd among the nobleſt and moſt beautiful Buildings erected ſince the time of the ancients; as well on account of its largeneſs and ornaments, as of its matter, which is all hewn Stone, extremely hard, join'd and bound together with the utmoſt care. There is no need I ſhould particularize the proportions of every part here, becauſe they are all mark'd in their places on the draughts.

Part of the Plan **, *and of the elevation of the* Baſilica *at large.*

* *Plate* XVIII. *and* XIX. † *Plate* XX. ** *Plate* XXI.

CHAP. XXI.

Of the Paleſtras *and the* Xiſti *of the* Greeks, *or places of publick exerciſe.*

AFTER having treated of Ways, Streets, Bridges, and Squares, it remains that we now diſcourſe of certain Edifices made by the *Greeks*, to which Men repair'd to exerciſe their Bodies; and 'tis very probable that, when the Cities of *Greece* were govern'd after a Republican form, there was one of theſe Edifices in each of thoſe Cities; wherein the youth, beſides learning the Sciences, by exerciſing of their bodies in a military manner (as in knowing their ranks, in throwing the bar or javelin, in wreſtling, in managing their arms, in ſwimming with burdens on their backs, and the like) became inur'd to the fatigues and accidents of War, whereby, tho' few in number, they could afterwards with their valour and military diſcipline beat numerous Armies. After the example of the *Greeks*, the *Romans* had their *Campus Martius*, or field of *Mars*, wherein the youth publickly exerciſed themſelves in the ſaid military Actions; from whence proceeded wonderful Effects, and many a glorious Victory. *Cæſar* writes in his *Commentaries*, that being ſuddenly attack'd by the *Nervii*, and ſeeing that the ſeventh and twelfth legions were ſo cloſe and crouded that they could not fight, he commanded them to ſet themſelves more at large, and that the one ſhould flank the other, that ſo they might have room to handle their Weapons, and not be hem'd in by their Enemies: which being with great ſpeed and dexterity perform'd by the Soldiers, obtain'd the victory for their General, and purchaſed to themſelves the immortal fame of valiant and well-diſciplin'd Men, ſince in the heat of the battle, when every thing was full of danger and confuſion, they did that which in our time ſeems to many extraordinary difficult to perform, even when there's no Enemy near, and where there's convenience both of time and place. The *Greek* and *Roman* Hiſtories are full of ſuch glorious Atchievements, whereof queſtionleſs the principal cauſe conſiſted in the continual exerciſe of the youth. From theſe exerciſes the ſaid places (which the *Greeks* built, as *Vitruvius* relates in the eleventh Chapter of his fifth Book) were call'd *Paleſtræ* and *Xiſti*, and they were comparted in the following manner. Firſt they traced or meaſur'd out a ſquare place of the compaſs of two [a] ſtades, that is, of two hundred and fifty paces; and on three ſides of it they made ſingle porticos, under which were ſpacious Rooms, wherein Men of Letters, as Philoſophers and the like, reaſon'd and diſputed together. On the fourth ſide, which look'd to the South, the porticos were made double, that the Rain driven by the wind might not in the ſpring time reach the inner parts, and that the Sun might be kept farther off in the Summer. In the middle of this portico was a very large Hall, a ſquare and a half in length, where the Boys were taught, on the right of which was the place where the Girls were alſo taught; and behind it the place where the Wreſtlers covered themſelves with duſt. Further on was the room for waſhing in cold Water, which we now call a cold Bath, and happens to be in the turning or corner of the portico. On the left of the Hall for the youth, was the place where the Wreſtlers anointed their Bodies to become the ſtronger, near to which was a cold room, where they put off their clothes; and further on a lukewarm Room, wherein was made a Fire, and from which they enter'd into the hot ſtove. This room had on the one

[a] *Palladio* varies from *Herodotus* lib. 2. fol. 68. in the meaſuring of the *Stadium*; for in *Herodotus* it is 125 Paces.

ſide of it the *Laconicum*, or ſweating-place, and on the other ſide the room for waſhing in cold Water. For this wiſe People would imitate nature, which proceeds thro' ſeveral mediums from extreme cold to extreme heat; and therefore they would not ſuddenly go from the cold Room into the hot, but by the interval of the lukewarm one. Without all theſe places were three porticos, one on the ſide of the entrance (which may be made Eaſt or Weſt) and the other two were on the right and left, the one to the North, the other to the South. The portico towards the North was double, and as large as its columns were long: that towards the South was ſingle, but much broader than any of thoſe we have mention'd, and was ſo divided, as that leaving on the ſide of the columns and of the Wall ten foot (which ſpace is by *Vitruvius* call'd the *margin* or border) they deſcended by two ſteps ſix foot broad into a plain place not leſs than twelve foot, wherein the Wreſtlers and others might in the ſpring exerciſe their bodies under cover, without being hinder'd by thoſe who were in the porticos to look on; who likewiſe ſaw better, by reaſon of the largeneſs of the place where the Wreſtlers were. The portico was properly call'd the *Xiſtus*. The *Xiſti* were ſo made, that between the porticos there ſhould be Woods and Plantations, and the ways between the Trees paved with *Moſaick* work. Near the *Xiſtus* and the double Portico were traced the open places for walking, by them called *Peridromides*, wherein in the ſpring time, when the Weather was fair, the *Athletes* might exerciſe themſelves. The *Stadium* was on one ſide of this Edifice, and was a place from whence People might commodiouſly ſee the *Combatants* and Performers of other Exerciſes. From theſe ſort of Edifices the example was taken by the *Roman* Emperors, who built the *Thermæ* or publick Baths to delight and pleaſe the People; theſe being places whither Perſons went to divert as well as to waſh themſelves, and whereof, if it pleaſes God, I ſhall diſcourſe in the following Book.

A. *The place where the Boys were taught.*
B. *The place where the Girls were taught.*
C. *The place where the Wreſtlers duſted themſelves.*
D. *The cold Bath.*
E. *The place where the Wreſtlers anointed themſelves.*
F. *The cold Room.*
G. *The Luke-warm Room, from whence they went into the ſtove.*
H. *The warm Room.*
I. *The* Laconicum, *or Sweating-place.*
K. *The warm Bath.*
L. *The outer Portico before the entrance.*
M. *The outer Portico towards the North.*
N. *The outer Portico towards the Eaſt, where they exerciſed in the ſpring, and is called the* Xiſtus.
O. *The Woods between two Porticos.*
P. *Open places for walking, call'd* Peridromides.
Q. *The* Stadium, *where the multitude ſtood to ſee the Combatants.*
The other places in the draught are Exhedræ *and Schools.*
LL. *The Eaſt.*
OO. *The South.*
PP. *The Weſt.*
TT. *The North.*

E N D of the Third Book.

NOTES and REMARKS of INIGO JONES upon the Plates of the Third Book of *PALLADIO*'s Architecture:

Taken from the Manuſcript of the ſaid INIGO JONES, in the Library of *Worceſter*-College, *Oxford*, *June* 23, 1741.

PLATE I. In my Journey to *Naples* I have ſeen one of theſe Ways; but the Horſe-way on the ſide of the Foot-way is not to be ſeen.

PLATE III. A. The Side of the Bridge. B. The Pilaſter is the Baſement againſt the Bank of the River.

C. The Heads of the Timber is the Breadth of the Bridge.

This Timber D. is the Plan of the Bridge.

E. Colonelli of the Sides of the Bridge.

F. The Bolts and Forelocks of Fir, that faſten the Timber with the Colonelli, and makes the Breadth of the Bridge.

G. The Braces thruſting together, which bears up all the Work.

M. The Holes made in the Timber for the Iron Bolts to paſs thro'.

PLATE VII. L. The Projection of the Planks. M. The Sides of the main Beams. N. The Sides of the under Beams. O. The Sides of the Braces. P. The Plate on the Heads of the under Poſts, which are worked narrower upwards. Q. The under Poſts. R. The Plate which is letter C, in the upright, and it's Projection in the Front and in the Profile. S. The Spurs.

PLATE VIII. A. This Modilion Cornice is along the Bridge over the Arches.

This Cornice is in height the ſixth part from the Spring of the Arches E. to the Soffita of the Arches, and it is divided into two equal Parts, one is given to the Modilions and Fillet under it: The other one is divided into three equal Parts, one is given to the Intavolato over the Modilions; and the other two to the Wave and Regolone, which is to be ſubdivided into five; three is given to the Wave, and two to the Regolone.

The Modilions are ſquare, and project out as much as the Intavolato.

PLATE IX. G. This is the Center of the Arches.

C. The Architrave of the middle Arch is $1\frac{1}{7}$ part of the opening of the ſaid Arch.

The Architrave of the two Side-Arches are $\frac{1}{9}$ Part of their Opening.

The Piers H. are the 5th Part of the Width of the ſmall Arches, and the 6th of the middle Arch.

PLATE XI. From this one *Scamozzi* took his for the *Corinthian* Order, Lib. 6. Fol. 127.

PLATE XIII. B. Theſe Porticos have their Cielings flat.

M. Theſe double Pilaſters in the Lodge, I think they diminiſh the ſame as the Columns, as *Palladio* does diminiſh his, and alſo *Scamozzi*, and has a Court before the Temple with Columns and Niches.

E. D. Theſe Temples are the ſame as thoſe of the Temple of *Pola*.

PLATE XIV. The upper Columns are ſhorter $\frac{1}{4}$ part than the under ones, and the Architrave, Freeze and Cornice bears it's Proportions; in this *Palladio* follows *Vitruvius*, and he is blamed by *Scamozzi* for making the upper Order ſo ſhort; but in this, as in moſt other things elſe, *Scamozzi* errs, becauſe in the Palace of *Montano Barbarano*, Lib 2. Plate 18. the ſecond Order is $\frac{1}{7}$ part leſs than the firſt Order, and *Scamozzi* gives a Rule that between $\frac{1}{5}$ and $\frac{1}{6}$ the ſecond Order ſhould diminiſh; beſides, *Palladio* in the Palace of *Valereo Chiricato*, Lib. 2. Plate 4. the Columns of the ſecond Order are $\frac{1}{5}$ part and more, leſs than the Order underneath. See the Court of *Charity* at *Venice*, Lib. 2. Plate 23. Of three Orders, the upper Order is leſs by $\frac{1}{5}$.

I have known the Rail and Baniſters A. placed on one ſide of the Pedeſtal, and not in the middle of the ſaid Pedeſtal, and the Pedeſtal level with the Cimaſia; for the Baſe of the Pedeſtal B. projects perpendicular on the Modilions C. The Baſe of the Rail is ſet in as much as the Ovolo and Dentil; which, beſides the upper Fillet, the Height of the Rail is $\frac{1}{3}$ part of the Height of the Pedeſtal, ſo as the Columns are ſet on the Pedeſtal.

They being $\frac{1}{4}$ part leſs than the under ones, do not ſhew ſo ſhort as they would without Pedeſtals, and they are more tolerable. See Plate 30.

In the Temple of *Jove*, Lib. 4. the ſecond Order of Columns is $\frac{1}{8}$ part ſhorter than the firſt Order; ſo it plainly ſhews the Ignorance and Malice of *Scamozzi* againſt *Palladio*; but he taxes *Vitruvius*, unto whom Poſterity is beholden for the Knowledge of the Art of Architecture, which, but for him, would have been loſt. See alſo the Baſilica of *Vicenza*, Plate 30. The upper Columns are $\frac{1}{8}$ part leſſer than the under ones, ſo as *Scamozzi* takes the Rule of leſſening the upper Order from *Palladio*, and he taxes him for it.

PLATE XVI. The Columns of the *Corinthian* Order are $\frac{1}{4}$ part leſſer than the Columns of the *Ionick* Order; the Architrave, Freeze and Cornice, are in their juſt proportion.

A. Theſe are two half Baniſters between the Pedeſtal of the Angle Columns, and ſhow where the Rail is to be placed in the Pedeſtal, which Baniſter ſhould ſtand perpendicular

pendicular to the naked of the Column; the Rail of the Inſide is quite plain, without Moldings.

The hollow of the outſide of the Rail ranges all along, and anſwers the hollow at the top of the Cimaſia of the Pedeſtal.

B. This Wave makes a Square and flat in the Soffita of the Portico.

C. The Freeze of the Inſide of the Portico is flat, and that of the Outſide ſwells.

D. Theſe are Shops for Goldſmiths, and other fine Trades.

PLATE XXI. The Statues at the top of the *Ionick* Order are in height ⅓ part of the Columns, Architrave, Freeze, and Cornice together.

The Eminence A. of the upper part of the Baſilica, which riſes above the Terrace.

The Columns of the *Ionick* Order are ſhorter ⅛ part than the *Dorick* Order.

PLATE XXII. R. An open Place with Columns, with Arches over them, as in the *Thermæ* of *Diocleſian*.

M. Double Porticos that defend both from Rain in Winter, and Sun in Summer.

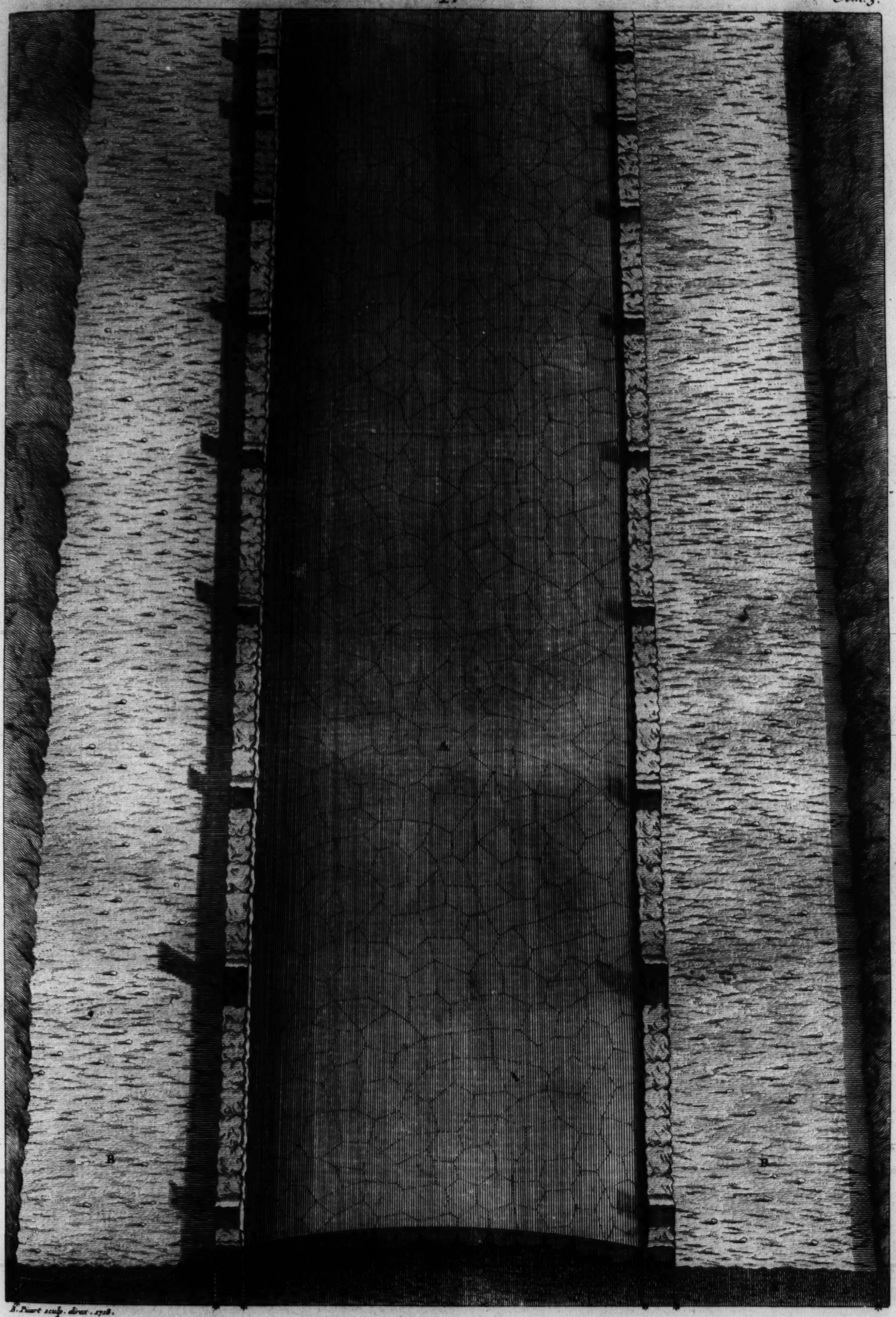
V. Theſe Arches are the ſame, as thoſe of the Temple of Peace.

X. Theſe Arches a Crochiera are commonly called Groinings.

END of the Firſt VOLUME.

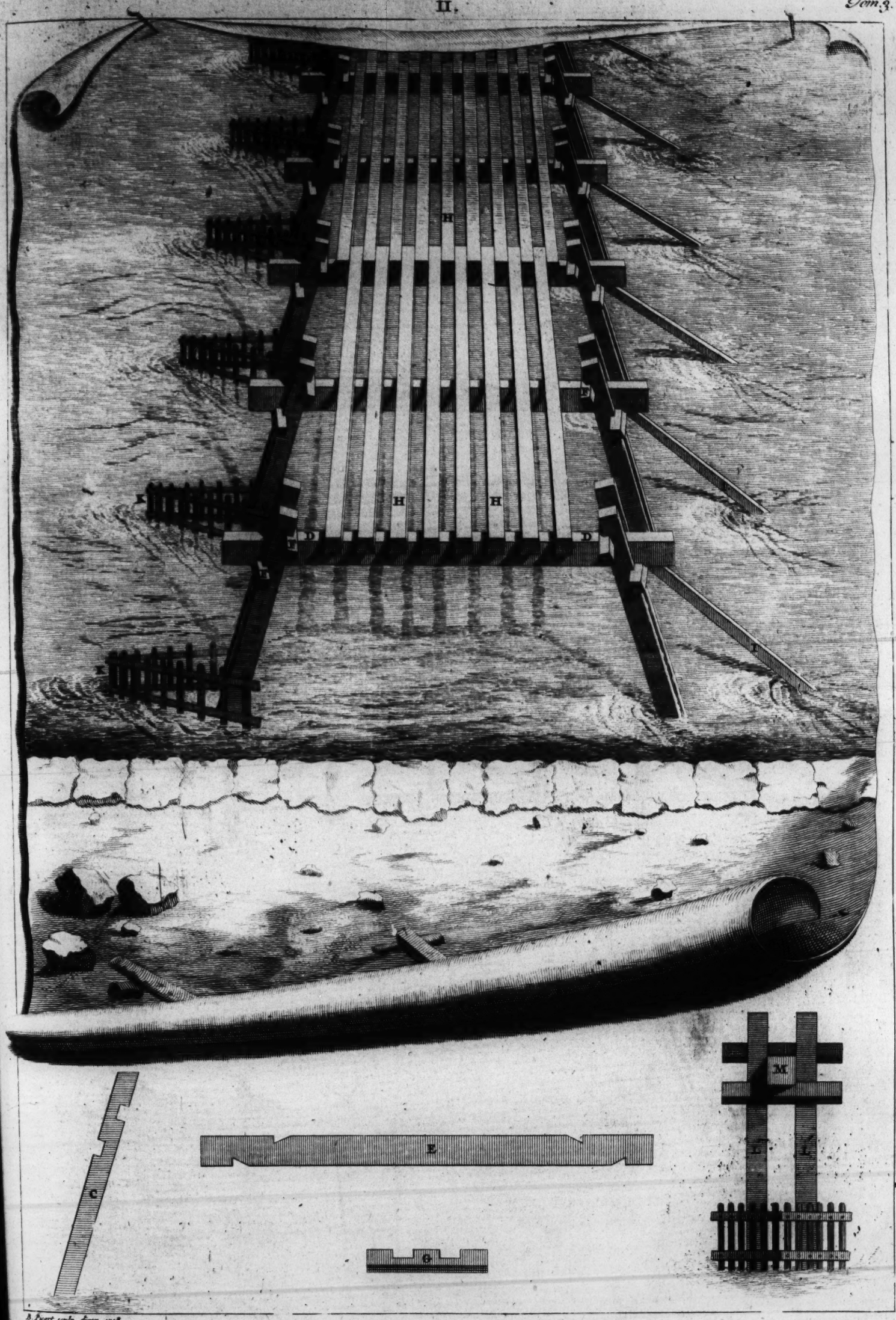
ARCHIVES DE L'ART FRANÇAIS 20 OCT 75 MUSÉE

I.



B. Picart sculp. direx. 1718.

BRITISH
29 OCT 75
MUSEUM

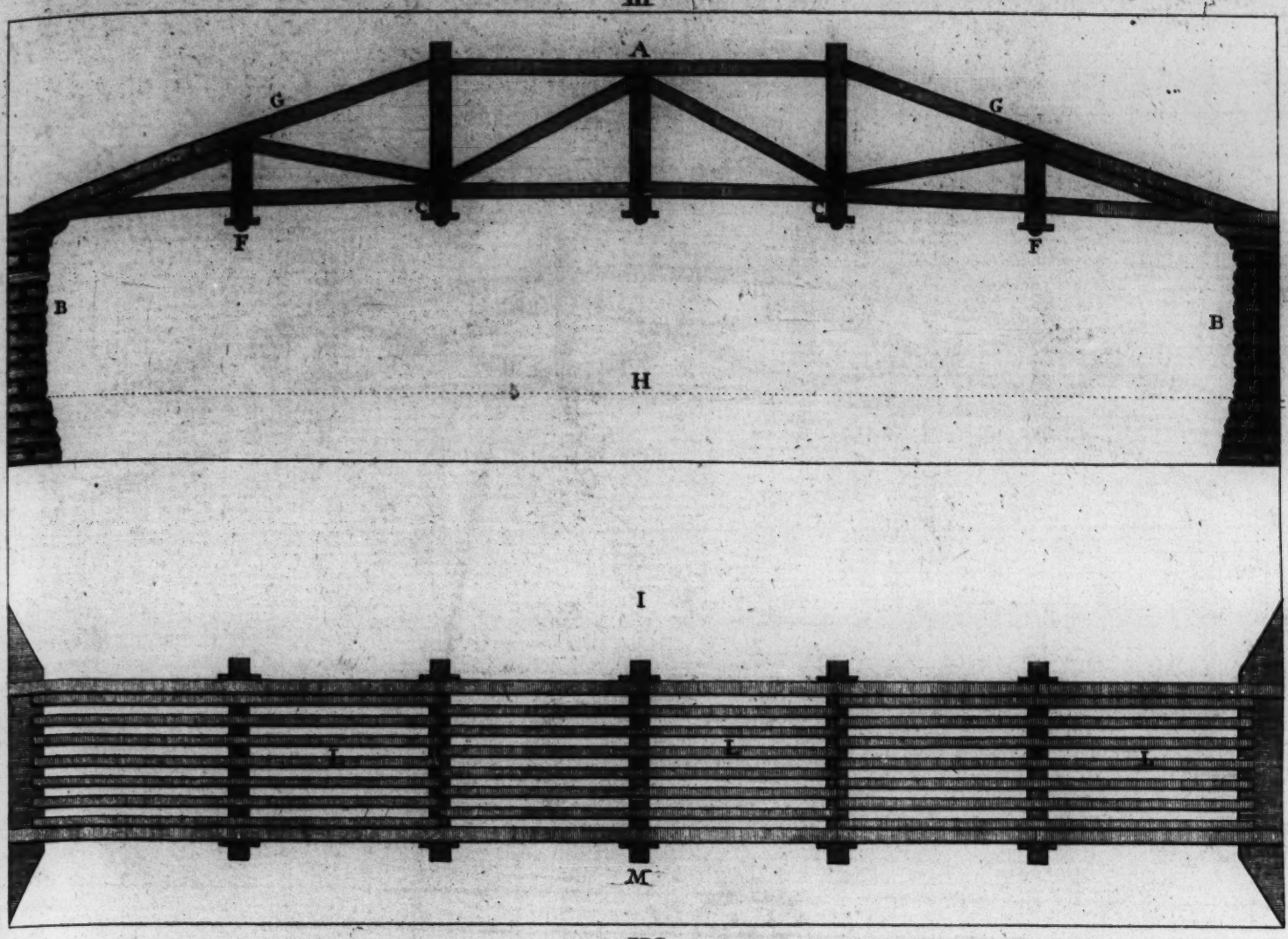


B. Picart sculp. Anvers. 1718.

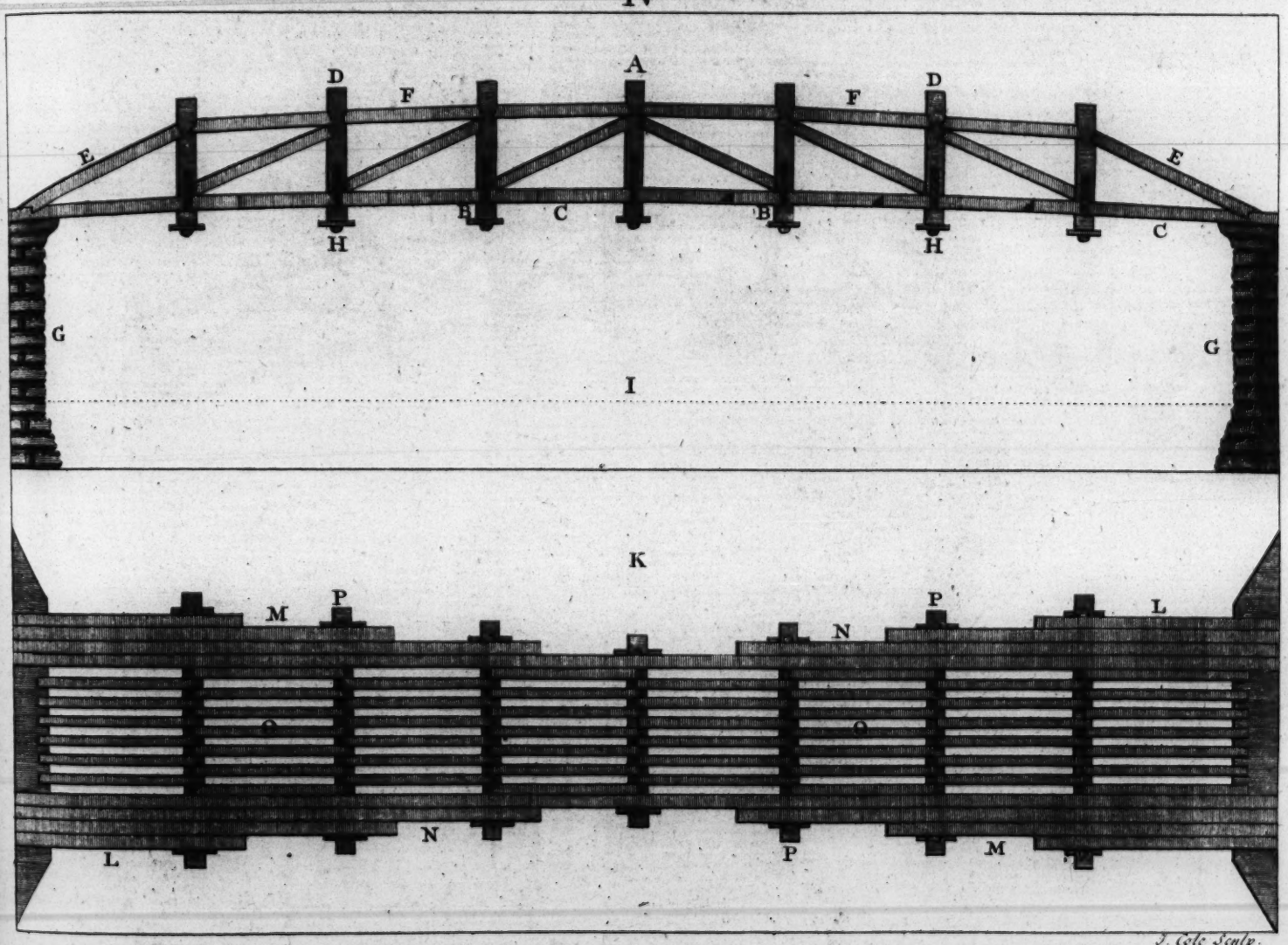
22 OCT 25

Tom. 3.

III



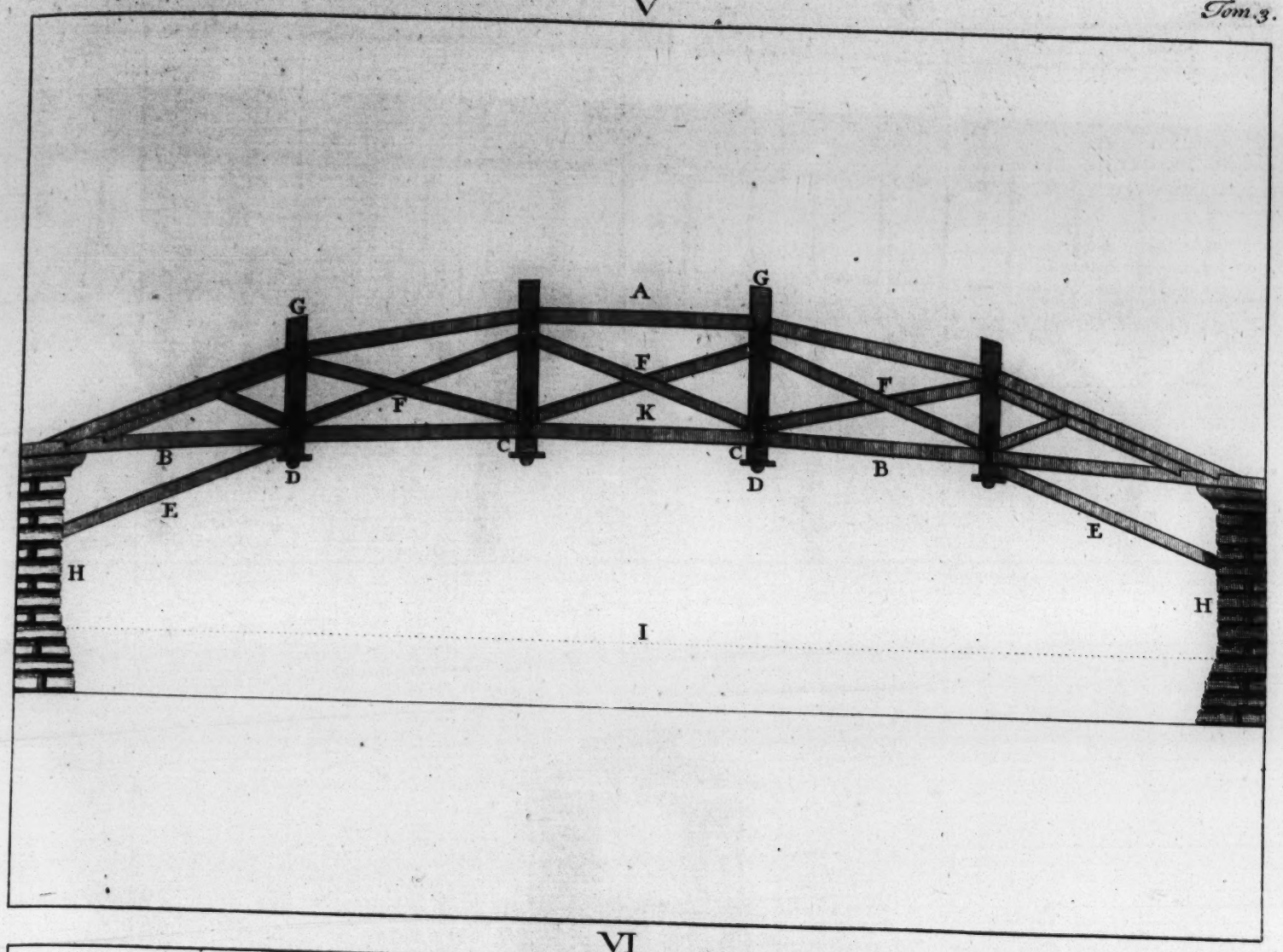
IV



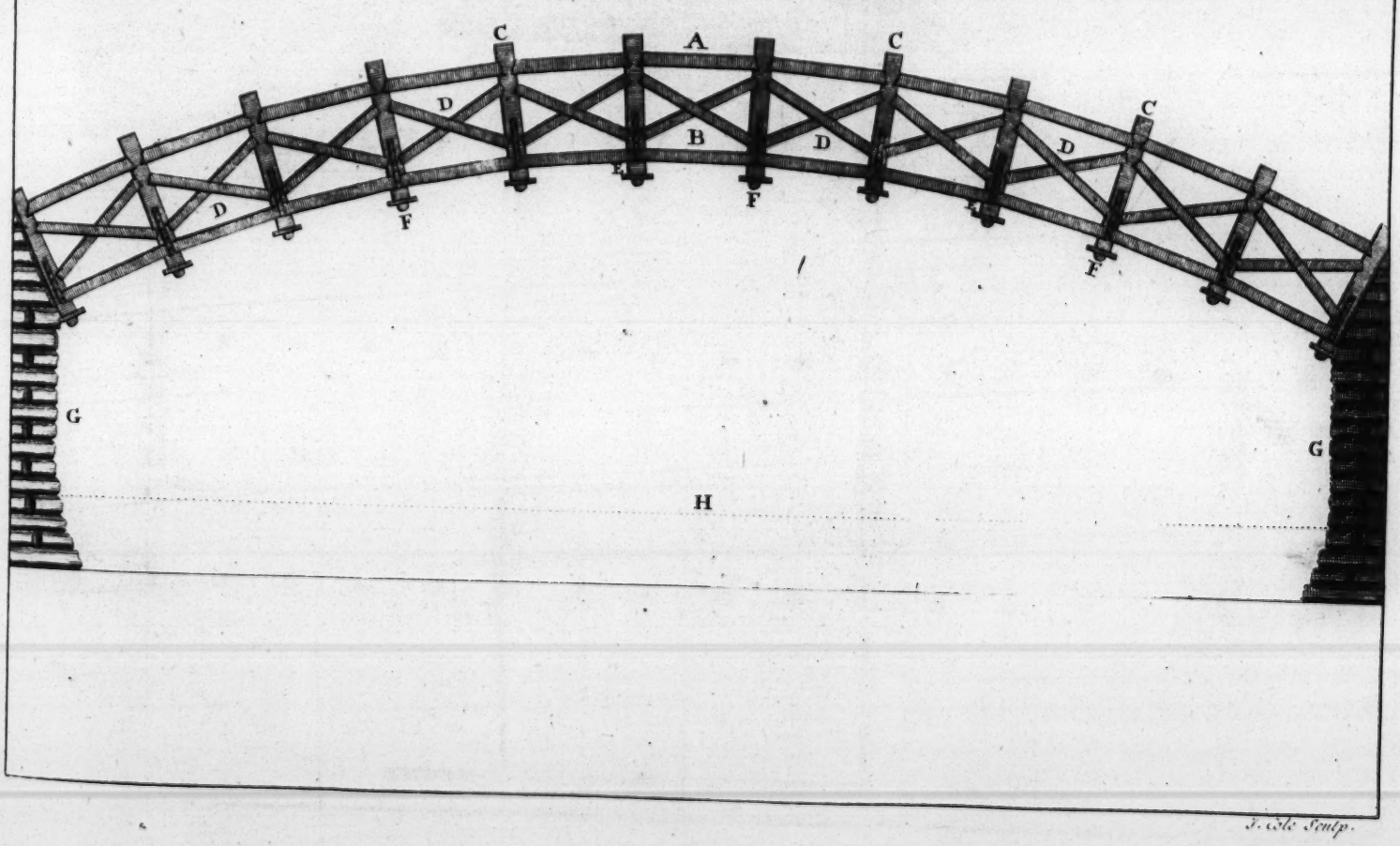
J. Cole Sculp.

LIBRARY
APR 30 '55
PRINCETON

V

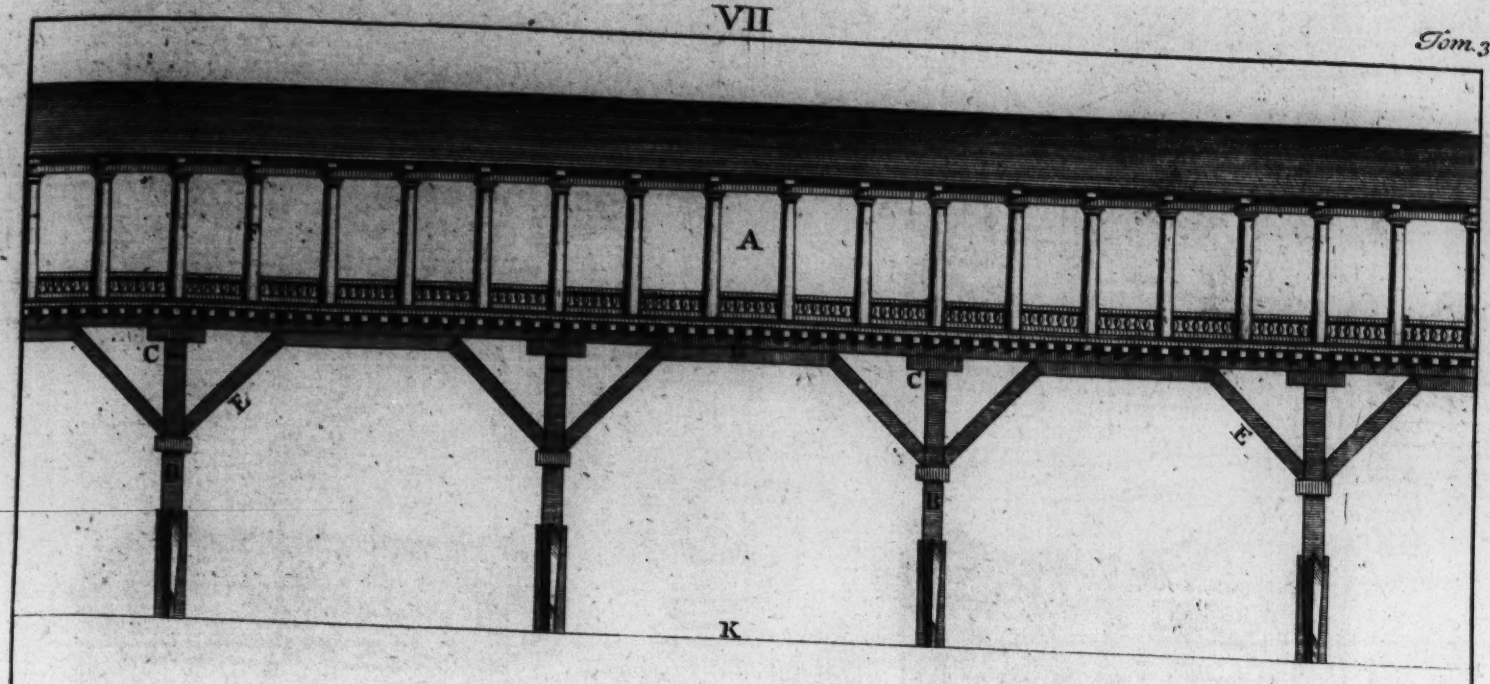


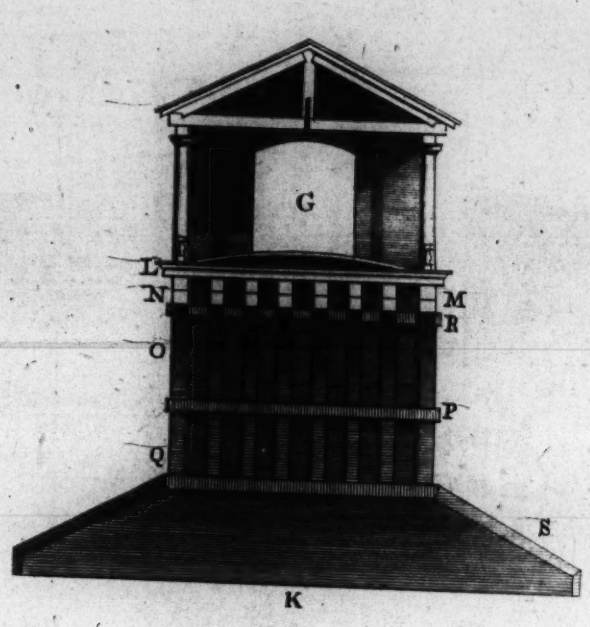
VI

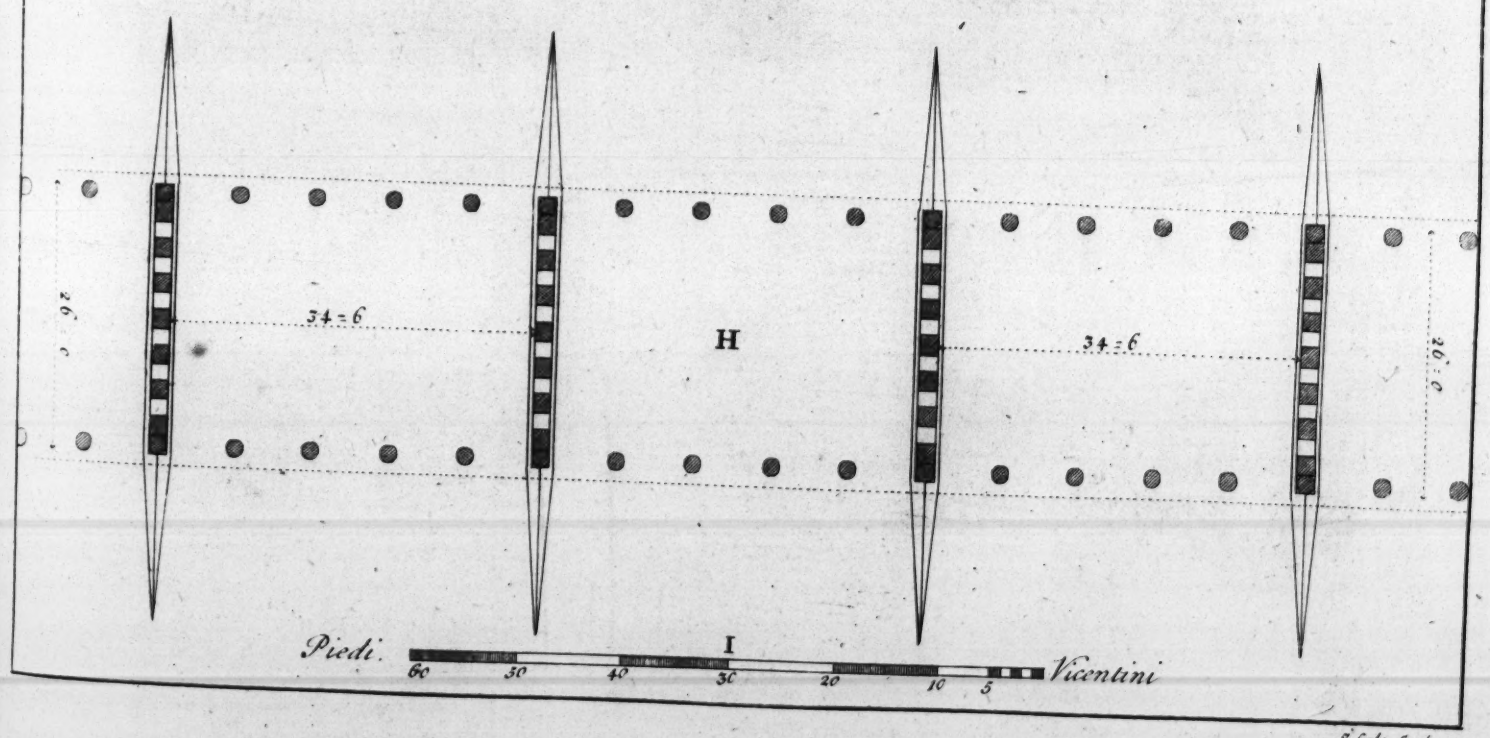


I. Sole Sculp.

SEATTLE PUBLIC LIBRARY
24 30 55


A
C
E
C
E
K

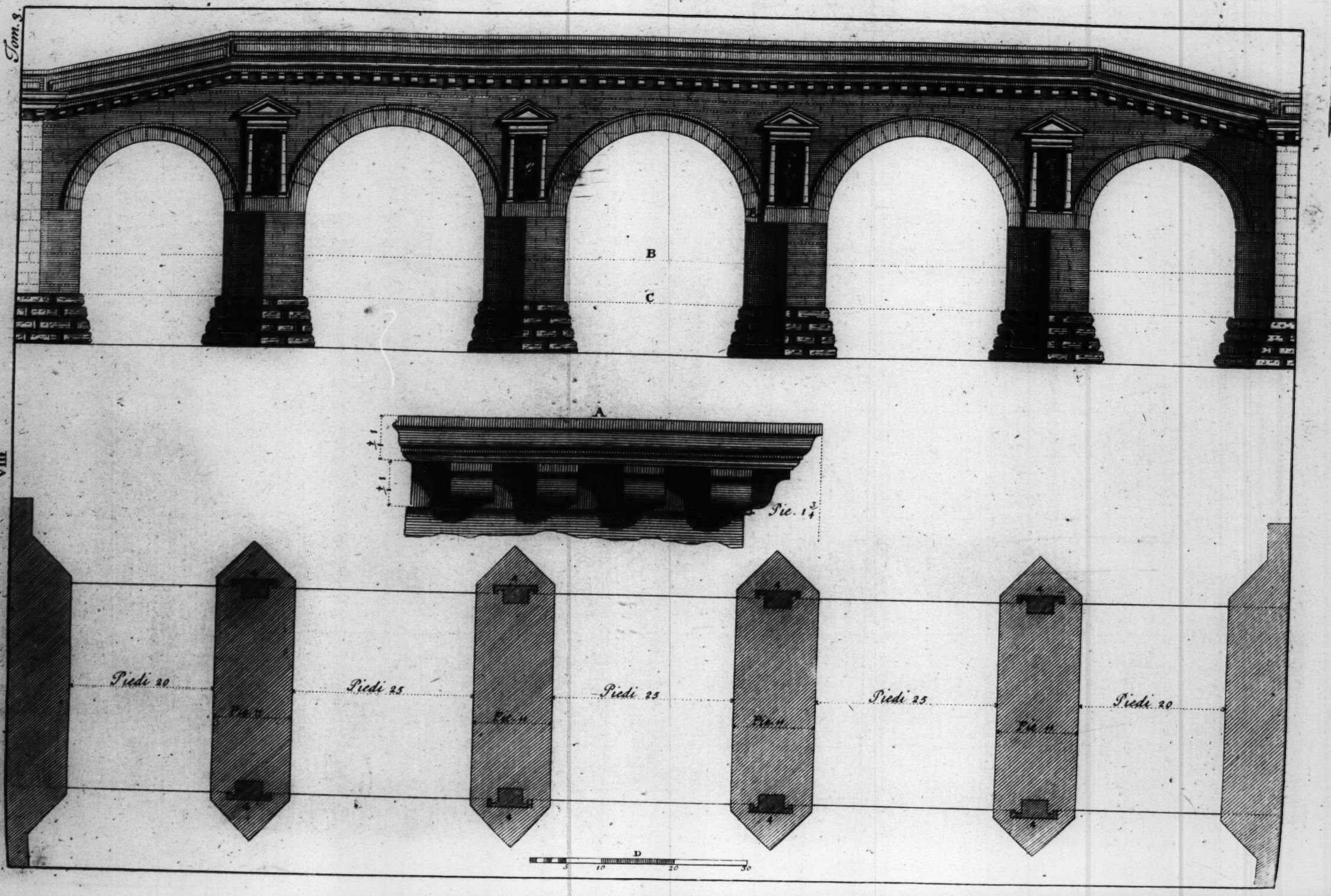

G
L
N
M
R
O
P
Q
S
K


34=6
H
34=6
Piedi.
I
60
50
40
30
20
10
5
Vicentini

J. Cole Sculp.

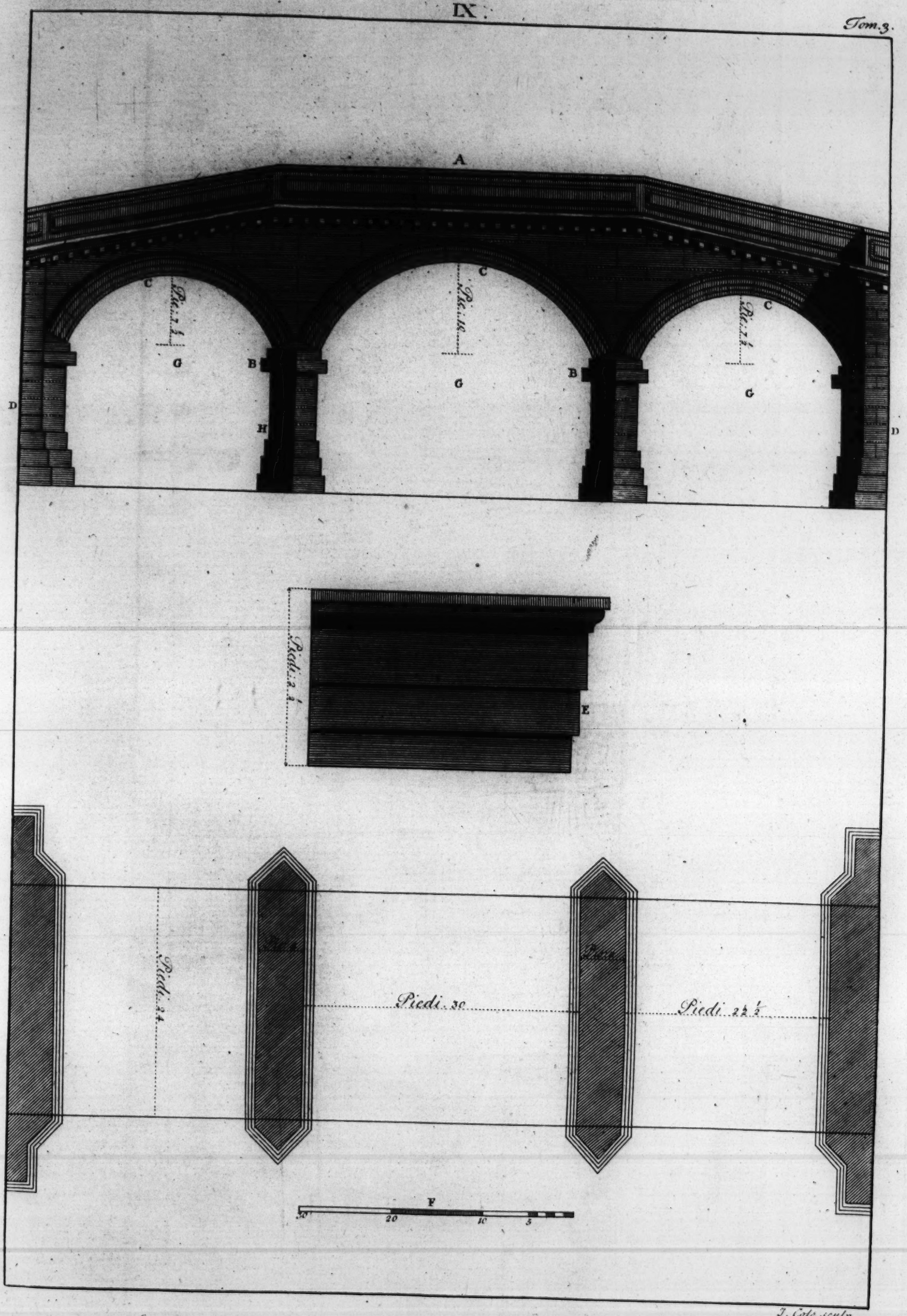
BIBLIOTECA
22 DIC 75
CENTRAL

Num. 8.


B
C
A
Pie. 1 3/4
Piedi 20
Piedi 25
Piedi 25
Piedi 25
Piedi 20
Pie. 11
Pie. 11
Pie. 11
Pie. 11
D
5
10
20
30

VIII

COLLEGE
22 DEC 45
HARTFORD


A
C
Piedi 7 ½
G
B
D
H
C
Piedi 18
G
B
C
Piedi 7 ½
G
D
Piedi 2 ½
E
Piedi 24
Piedi 30
Piedi 22 ½
F
30
20
10
3

J. Cole sculp.

RAMSDEN
22 OCT 75
LIBRARY

X.

Tom. 3.

E

C

B

F

D

A

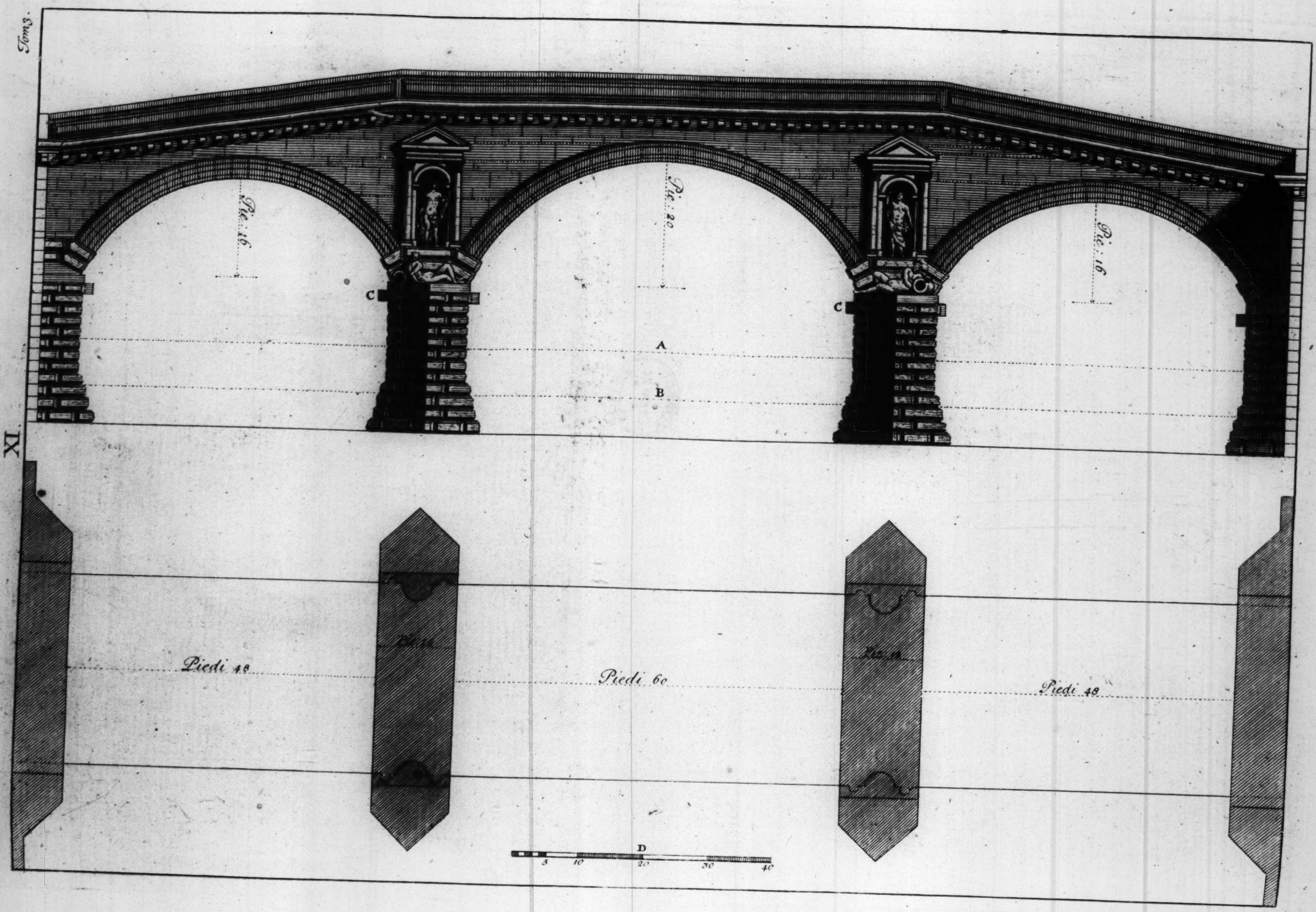
G

H

B. Picart sculp. dessinée exprès.

Tom 3.

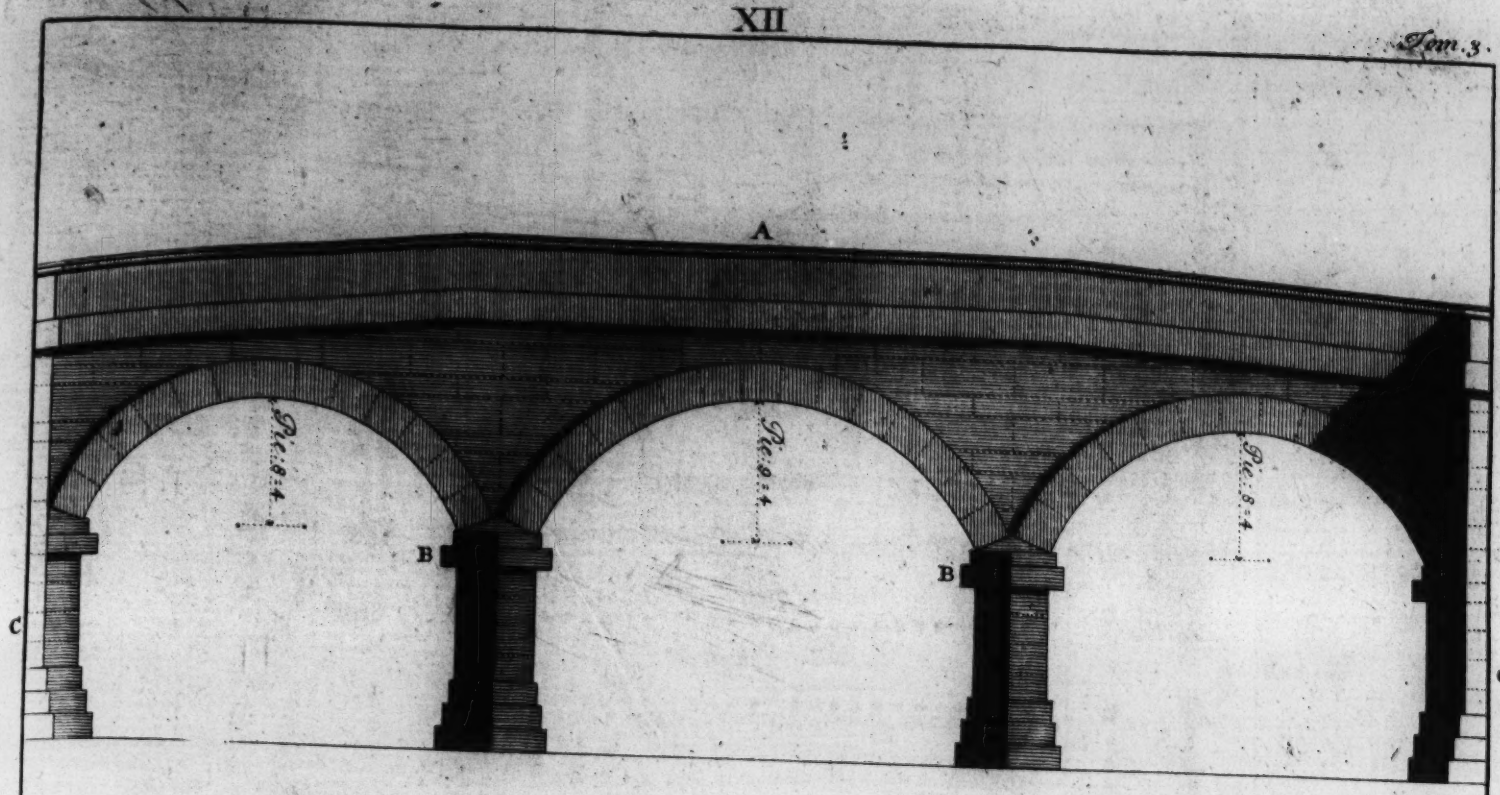
IX.

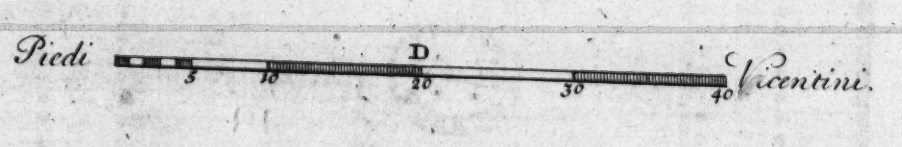

Pie. 16
Pie. 20
Pie. 16
C
C
A
B
Piedi 48
Piedi 60
Piedi 48
D
5
10
20
30
40

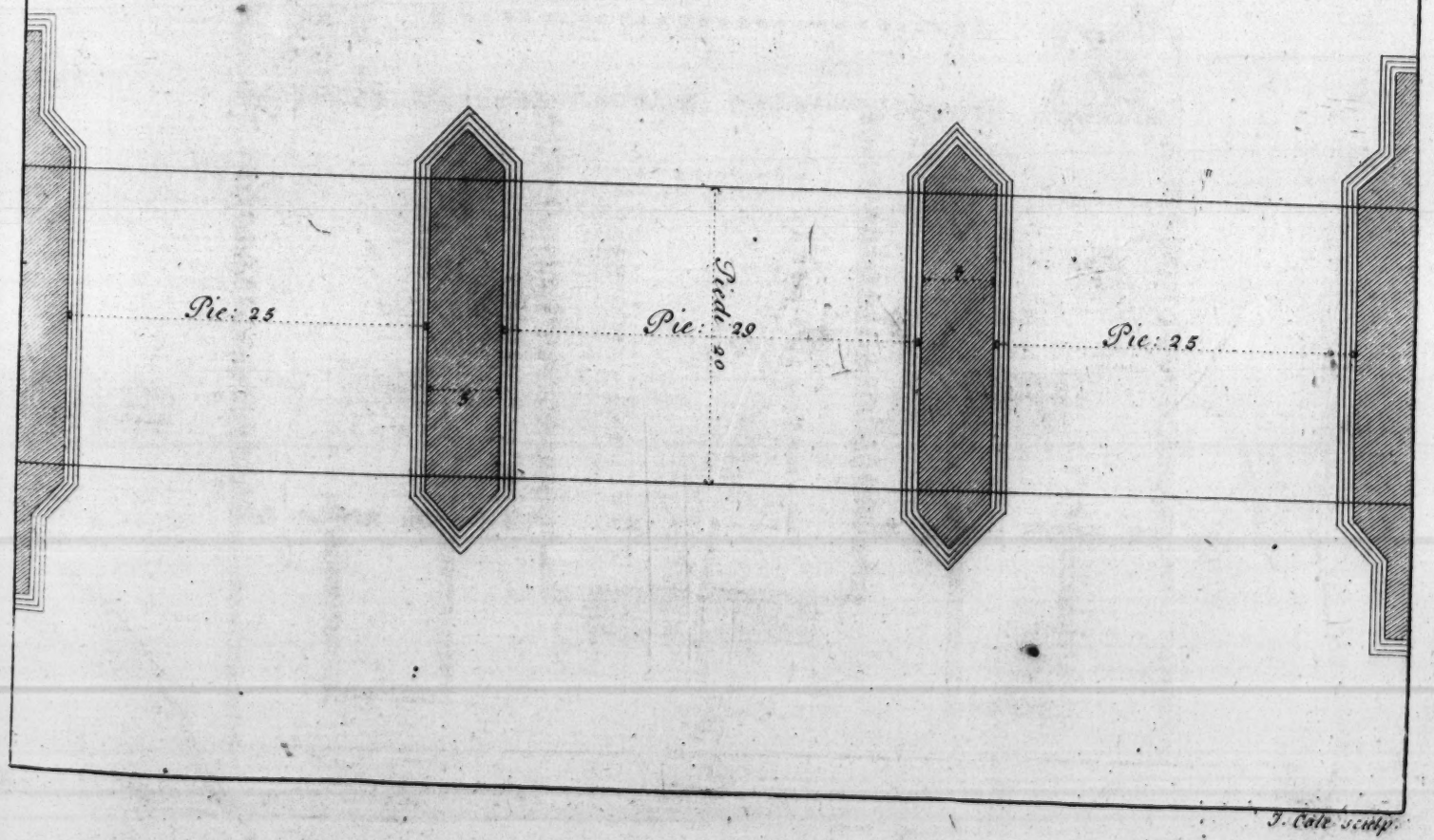
ST. LOUIS
PUBLIC
MUSEUM

XII

Tom. 3.





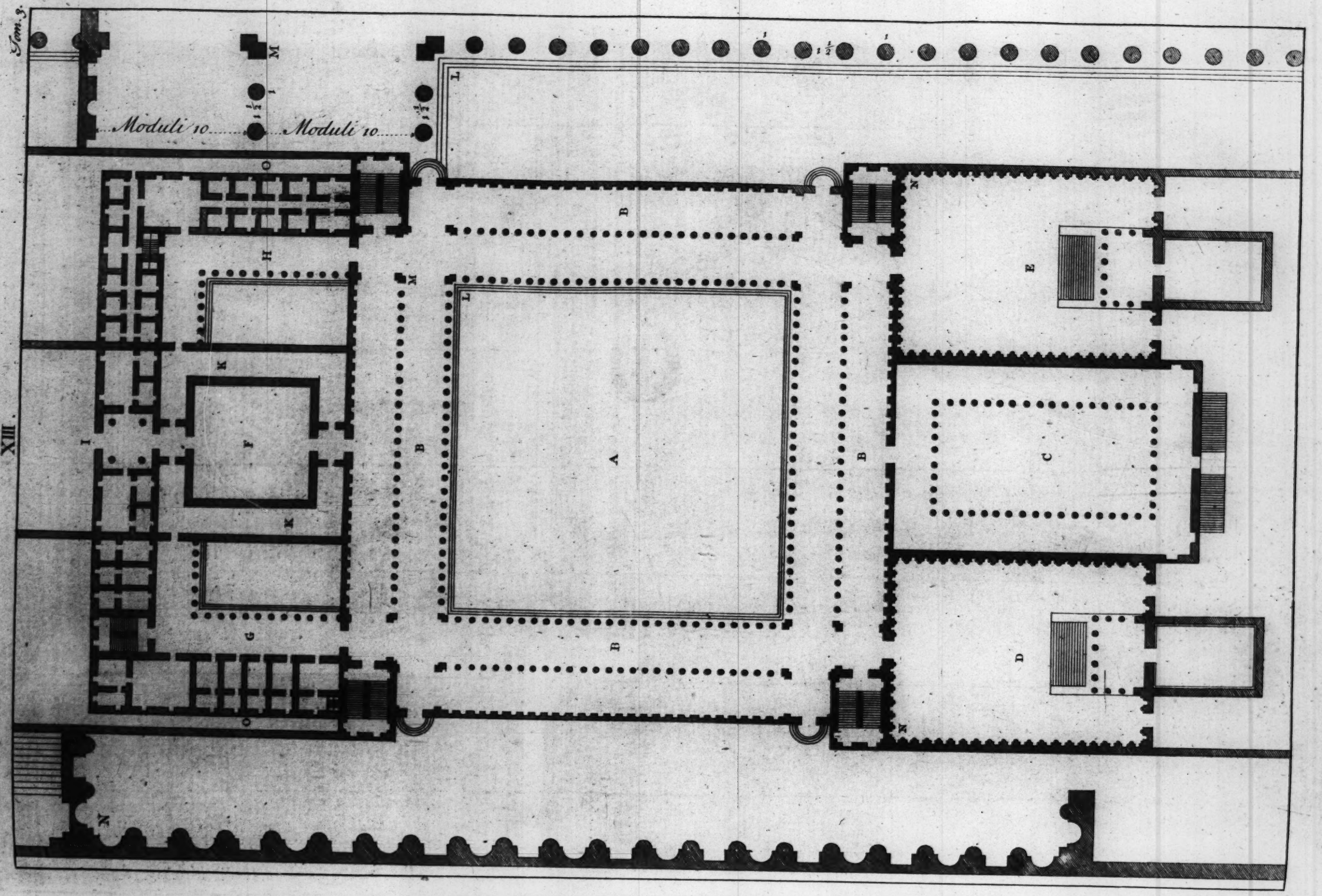


I. Cole scultp.

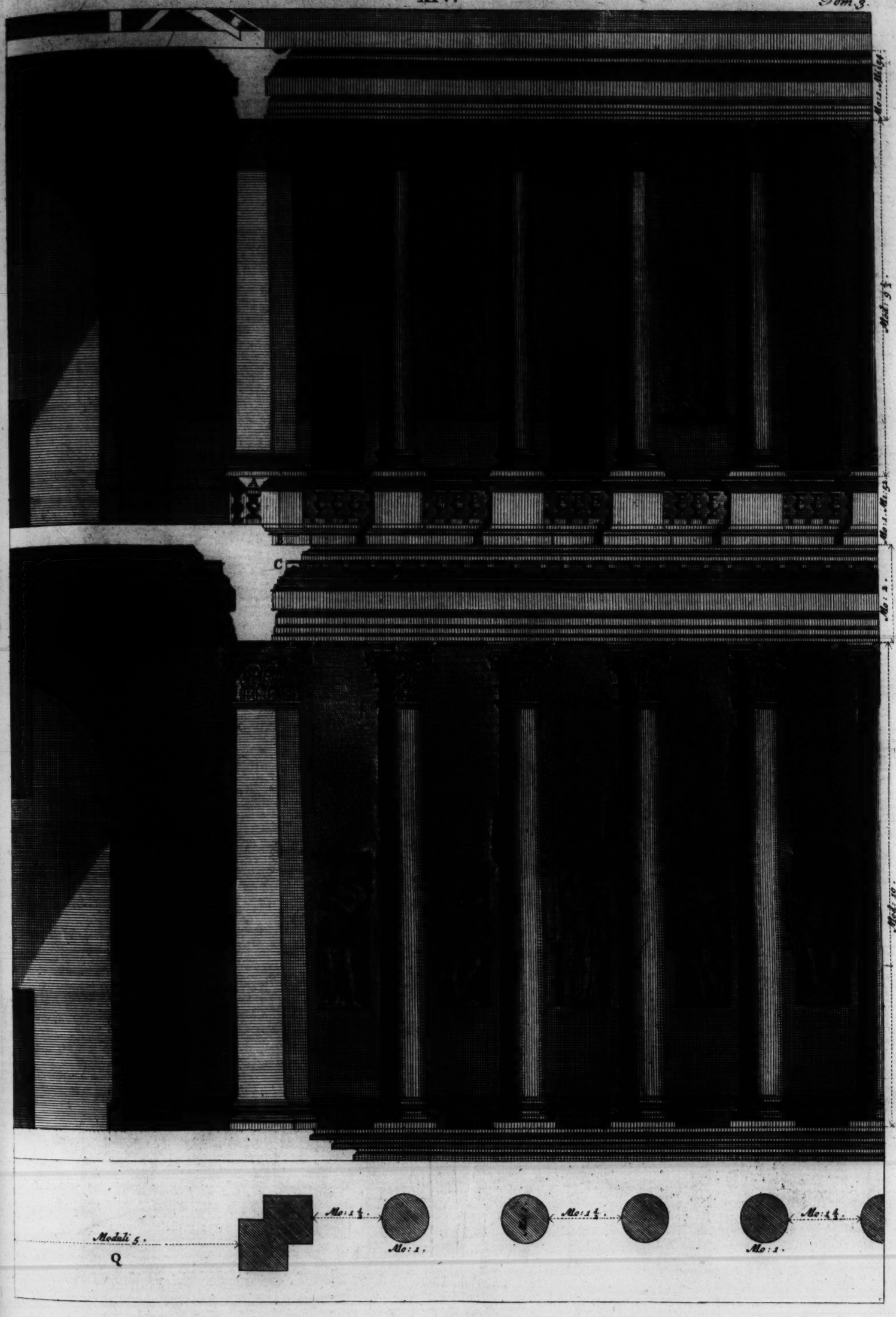
FINLAYSON
BEQUEST

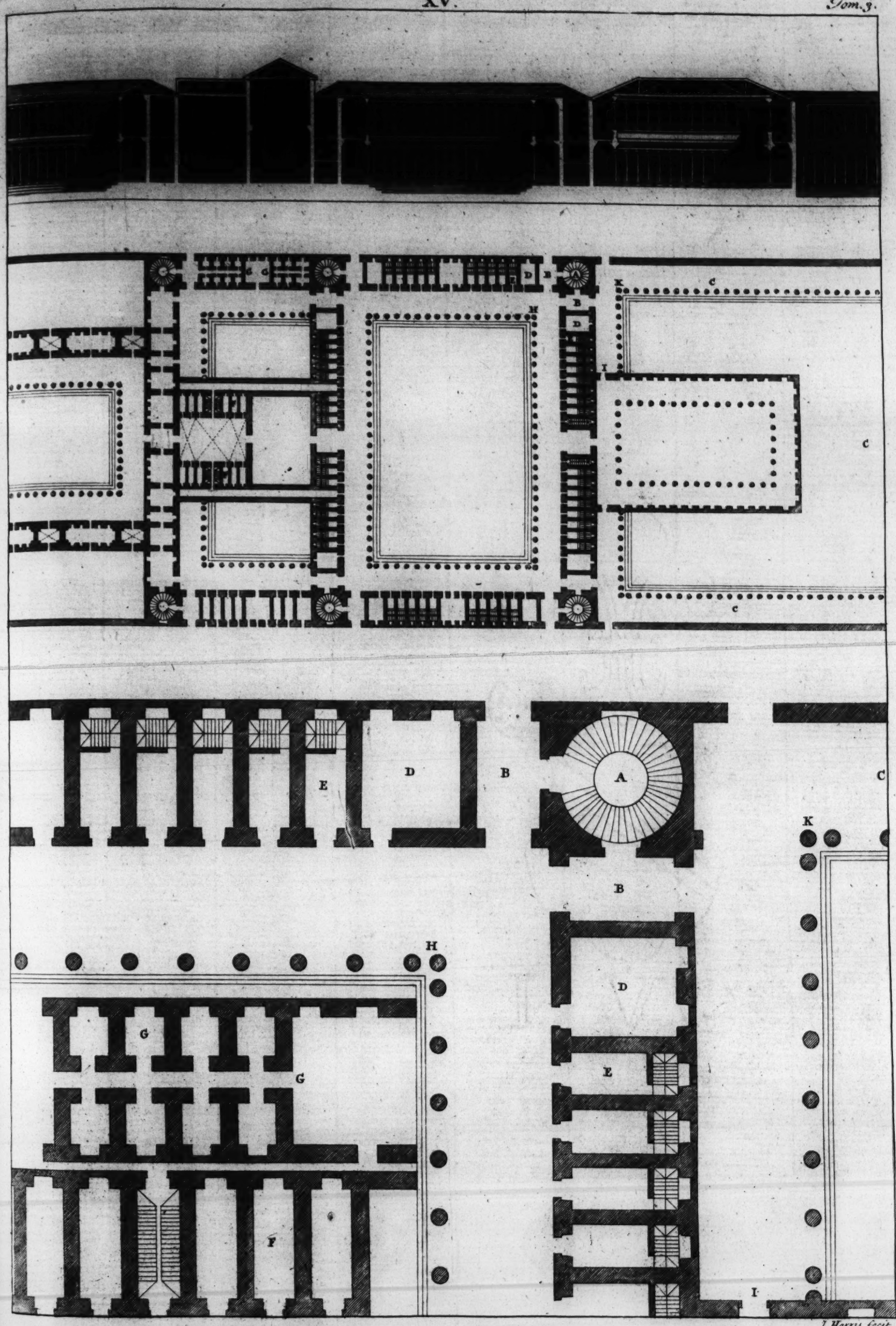
Tom. 3.

XIII.



ARCHIVES
22 OCT 75
PARIS


Modul: 5.
Mo: 1 ½.
Mo: 1.
Mo: 1 ½.
Mo: 1.
Mo: 1 ½.
Mo: 1.
Mod: 5.
Mo: 2.
Mo: 2.



J. Harris fecit.

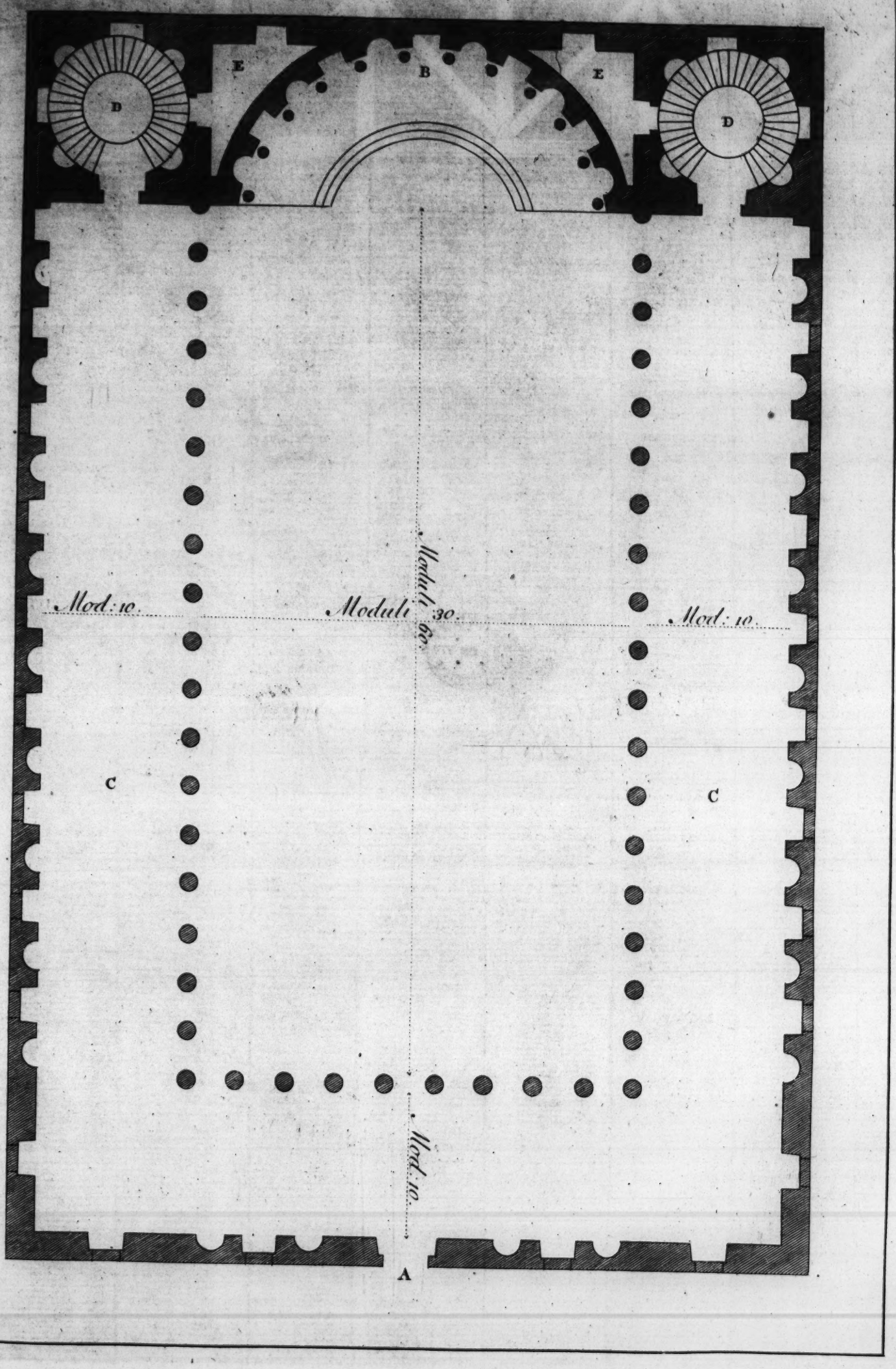
RECEIVED
22 OCT 75
HUSTON

XVI.

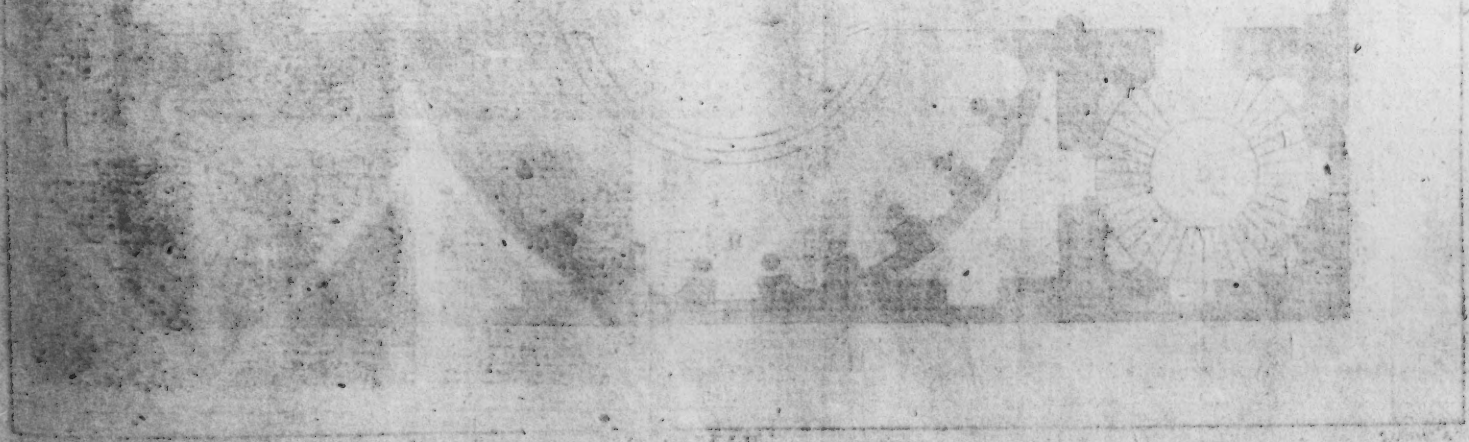
Tom 3.

Piedi 17 - 6.
3 - 4.
4 - 8.
Piedi 22 8.
Piedi 2 - 8.
Piedi 2 - 8.
Piedi 3 - 4.
Piedi 3 - 4.
Piedi 3 - 4

22 OCT 25
SMITHSONIAN
MUSEUM


E
B
E
D
D
Modul: 30.
Mod: 10.
Modulo 60.
Mod: 10.
C
C
Mod: 10.
A

PATENT
22 OCT 74
RETURN

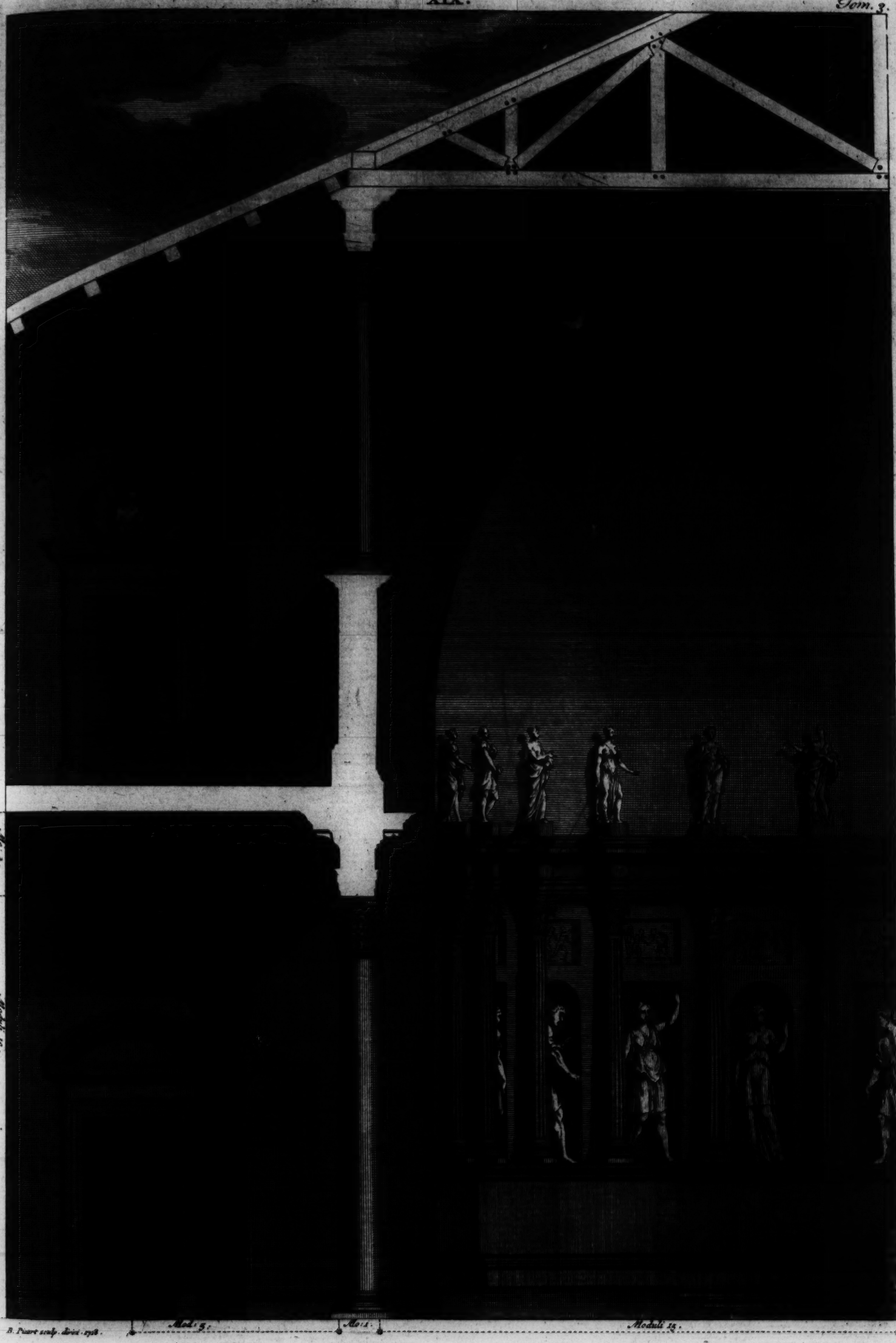


XVIII.

Tom 3.

B. Pinart sculp. direx. 1918.

PRESENTED
22 OCT 75
LIBRARY



Modulo 10.

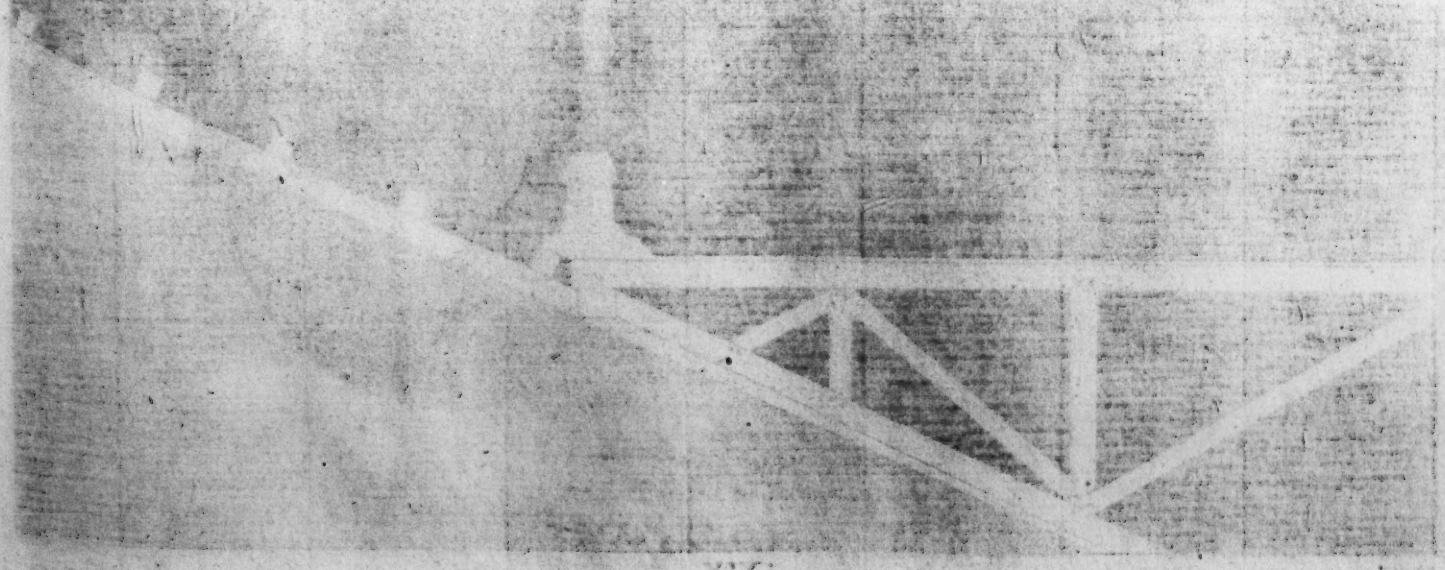
Modulo 5.

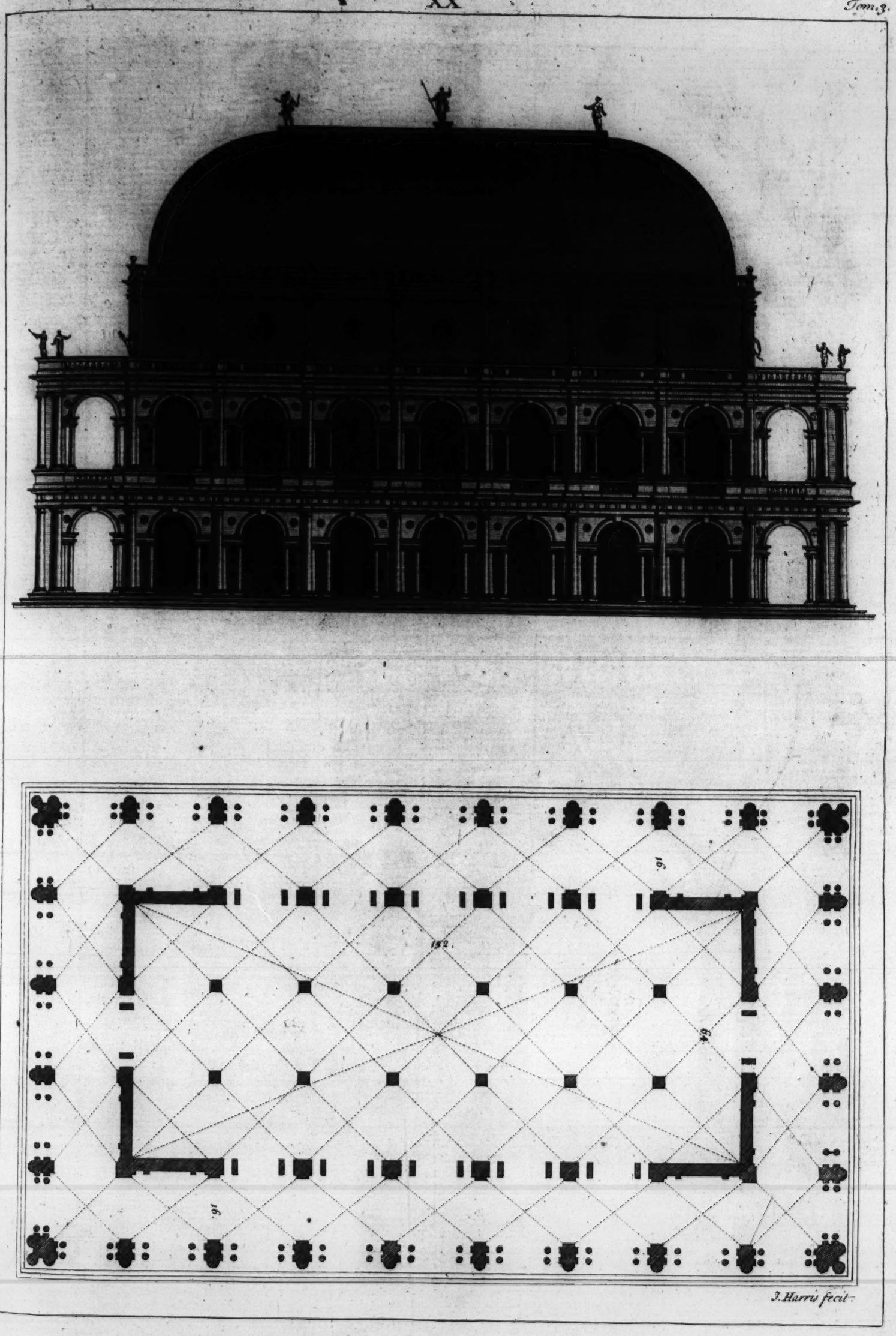
Modulo 1.

Modulo 14.

B. Picart sculp. Amst. 1718.

PRESENTED
22 30 25
BENNETT





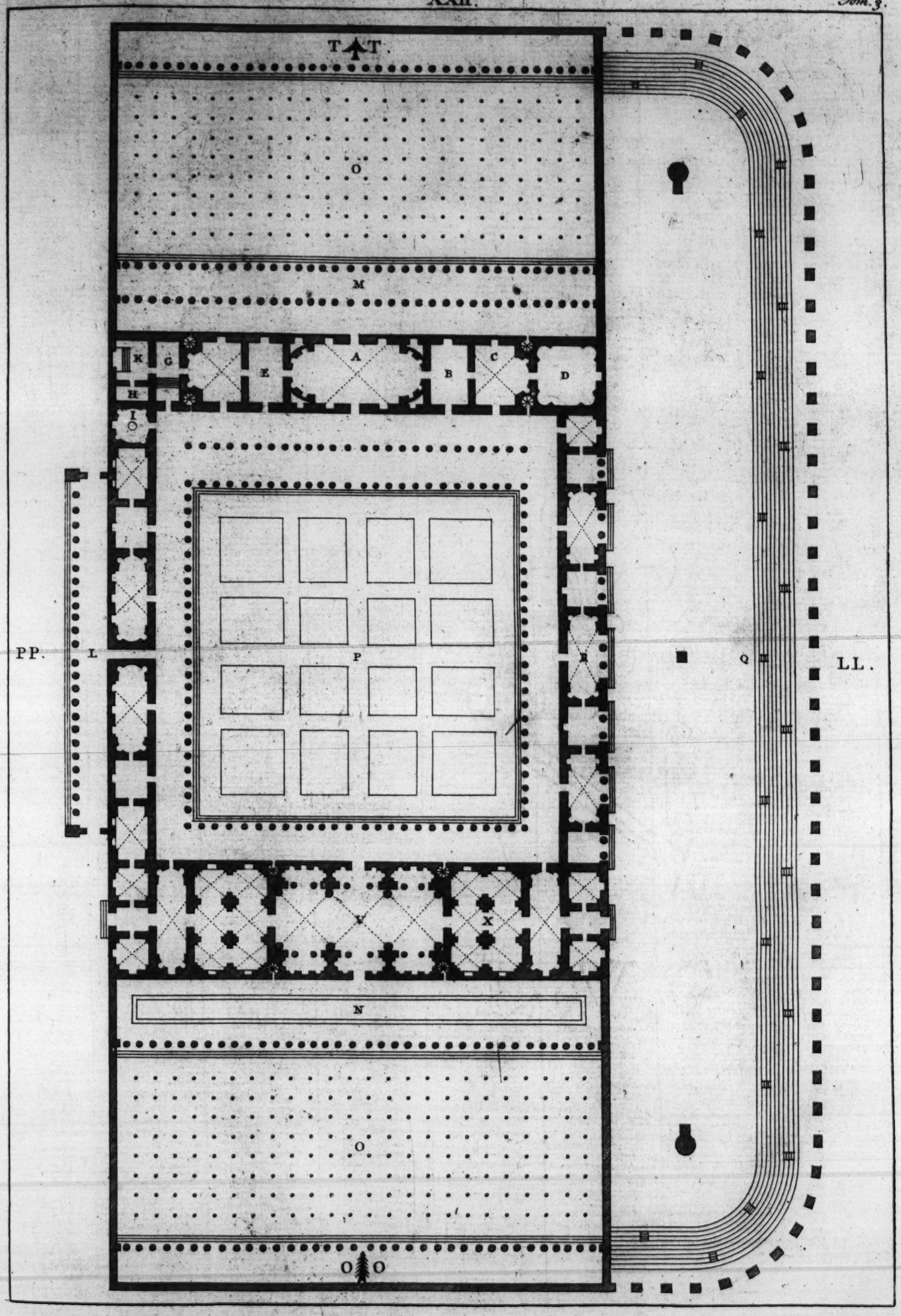
J. Harris fecit.

RECEIVED
23 OCT 75
PATENT OFFICE

XXI.

Tom. 3.

BRITISH MUSEUM 22 OCT 75


T T
O
M
K
G
E
A
B
C
D
H
I
PP.
L
P
R
Q
LL.
V
X
N
O
O O

BRITISH MUSEUM
22 OC 75
LIBRARY